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BADGER STATE

SMOKE SIGNALS

For Radio Amateurs • By Radio Amateurs

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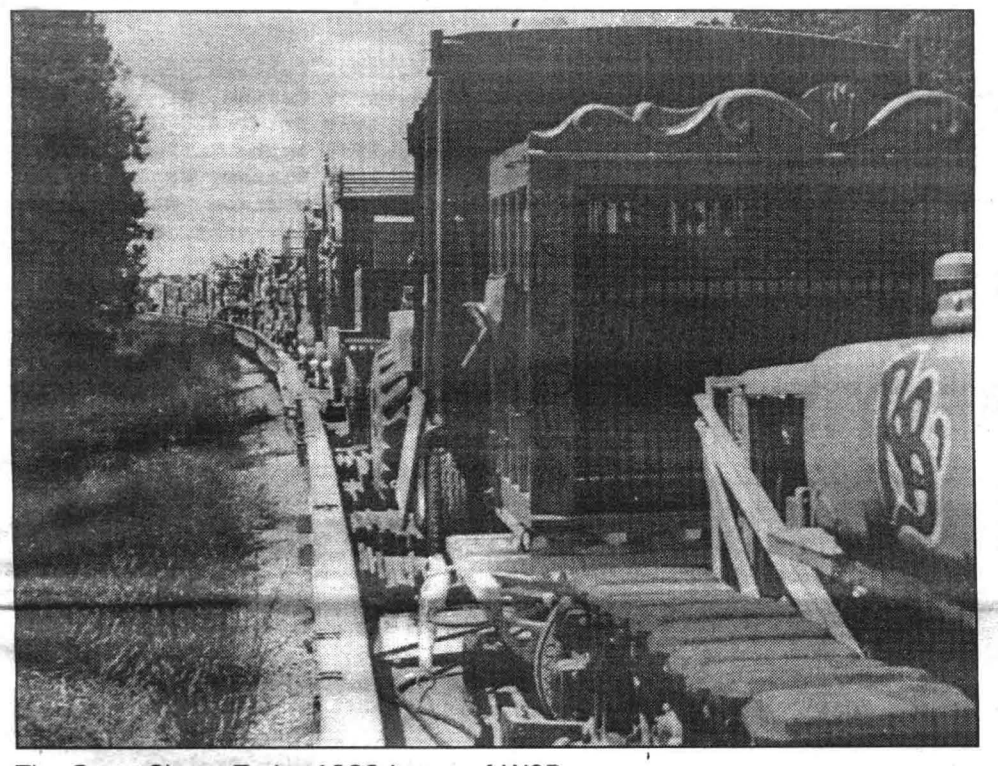
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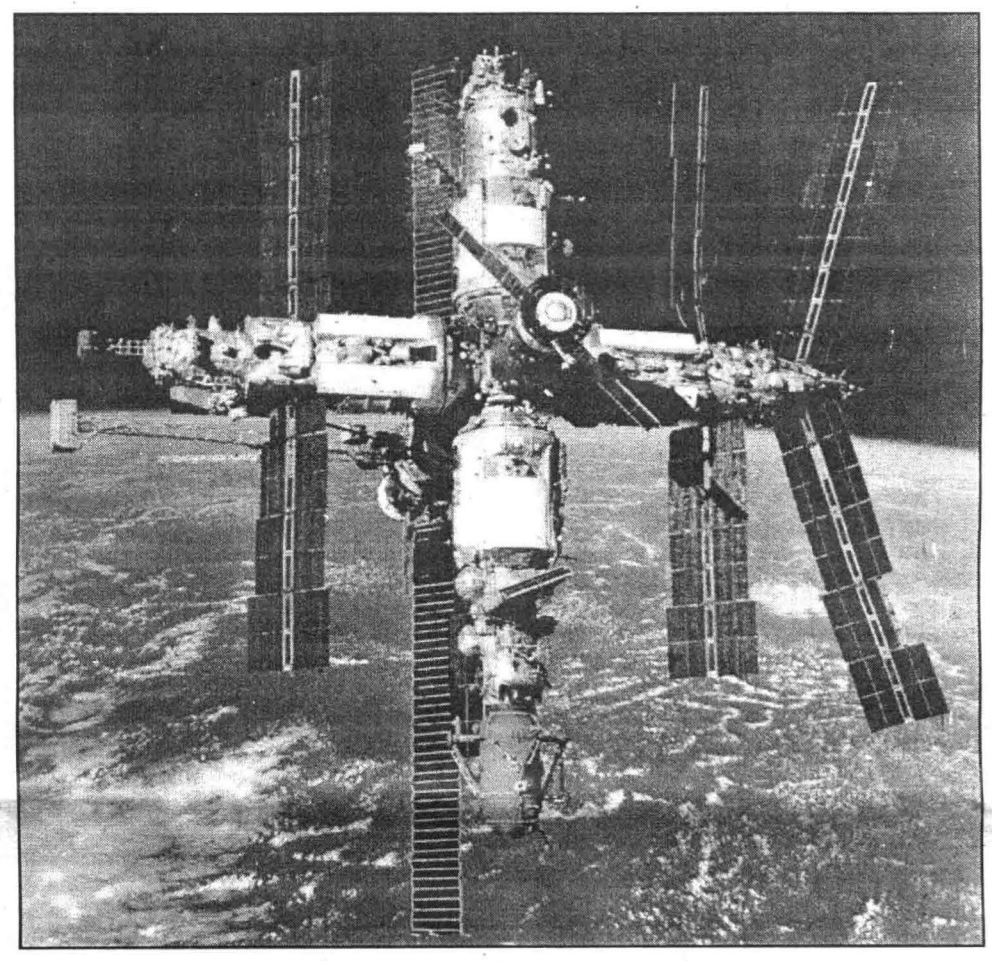
ASTRONAUT JEAN-PIERRE HAIGNERE:

"We Need to Laugh"



The Great Circus Train, 1999 home of W9R.

Photo by K9ZZ



The Mir space station, home of RØMIR.

Photo by NASA

An eight minute QSO on 2 meter FM made on July 3, 1999 undoubtedly made history in several ways. The contact, at about 8:35 a.m. CDT, was between the Great Circus Train and Cosmonaut Jean-Pierre Haignere, operating RØMIR, on the Russian Mir space station.

Mobile to space contacts aren't particularly uncommon. But a chat between a ham on an old-fashioned circus train and a cosmonaut in earth orbit has to be the first - and probably only - QSO of its kind. It was a great study in contrast. The Mir space station is to be de-orbited next year.

The train, traveling on Wisconsin Southern right of way, was just out of Milton, Wisconsin, when, right on schedule, RØMIR appeared and called the special event station, W9R, on the train. The schedule was made by MIREX coordinator Dave Larsen, N6CO.

Mir's orbit on this pass took it to about sixty degrees above the horizon; closest approach was just under 400 miles. The contact was made using an Icom IC-27H and a 5/8-wave magnetic mount antenna plopped on the roof near the end of the coach.

There was a bit of call sign confusion at the start, but after getting squared away, the conversation was most interesting. Jean-Pierre knew the QSO would be with a circus train, of course. The operator on the train asked the orbiting cosmonaut his thoughts about the circus. He said "I tell you a secret. When I was a boy, they asked me what I want to be when I grow up. I tell them I want to be a clown."

By this time, the people riding in the hush fell as they listened to RØMIR tell the riders what life is like up there. He told of looking forward to the arrival of a Progress supply ship (which did get there), and of looking forward to returning to Earth in August, "to *smell* the earth again."

With the train moving about 25 miles per hour, and Mir moving a little faster than that - a bit over 17,000 miles an hour - the window was drawing to a close. The train's ham operator said "thank you" and "goodbye" in French and Russian, then "bye bye" in English. Jean-Pierre replied "bye bye". The train's operator was a bit surprised to hear applause from behind him. The reporter from the Appleton *Post-Crescent* had a huge grin. Another reported, from WFAW, looked quite happy, too.

The contact could not have been made without the help of Dave Larsen, N6CO, and Milwaukee AREC Inc. staffers Bob Goldstein, K9KJT; Jack McLeland, W9-ATK, and Tom Kucharski, KA9EWJ. As noted above, Dave arranged the schedule. Tom helped check - and replace - a defective antenna; Jack was a cell phone contact with N6CO, and Bob videotaped the contact. Thanks also to Dale Williams, Trainmaster; Keri Olson, PR Director of Circus World Museum, and Director Greg Parkinson, and to Strong Capital Investments. The train is history brought to life, and now it has made some history of its own.

Jeanne-Pierre put something into focus which our all-too-serious world seems to have forgotten when he said, "I like the circus because it makes us laugh. We need to laugh." ❑

There are credits due to others, too, for making W9R happen this year. They include Lou Ann Keogh, KB6HP; Al Johnson, AA7CS; Maury Mead, W9FBC; Tom Weeden, WJ9H; Dave Knaus, WA9POV; George Halper, W9SUF; Steve Polishinski, WB9YSD; Barb Polishinski, N9JAR, and possibly others. We have tried to list everyone who helped in any way, and hope that no one was missed. It does take a lot of people to make events like this work, because there so many details requiring attention - technically, logistically, and other details, too. ❑

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WHAT'S HAPPENING

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Edited by Kenneth A. Ebneter, K9EN, 822 Wauona Trail, Portage, WI 53901 • kebneter@palacenet.net

Swapfests

and Other Social Events

SATURDAY-SUNDAY, SEPTEMBER 18-19, 1999. Peoria Superfest, Exposition Gardens, Peoria, IL. Contact: (309) 692-FEST(3378) e-mail www.w9uvi.org

SATURDAY, SUNDAY, SEPTEMBER 25-26, 1999. RADIO EXPO 99, Lake County Fairgrounds, Grayslake, IL. Contact: (708) 457-0966. http://www.chicagomfclub.org

FRIDAY, OCTOBER 1, 1999. Racine Megacycle Club Amateur Radio & Computer Auction. Knights of Columbus Hall, 13249 Washington Ave., Racine WI. www2.wi.net/~hamradio/auction.html

SATURDAY, OCTOBER 30, 1999. HAMFEST Minnesota & Computer Expo. St. Paul, MN. contact: (612)535-0637. http://www.hamfestmn.org

SATURDAY, JANUARY 8, 2000. 28th Midwinter Swapfest, Waukesha County Expo Center Forum, Waukesha, WI. Contact: WARAC Swapfest, PO Box 1072, Milwaukee, WI 53201, or call Phil, W9NAW (414) 425-3649.

SUNDAY, JANUARY 9, 2000. South Bend Hamfest, South Bend, IN. Contact: Michiana Valley Hamfest Association, 21970 Kern Road, South Bend 46614.

SATURDAY, MAY 6, 2000. Ozaukee Radio Club 22nd Annual Radio and Computer Swapfest, Circle-B Recreation Center, Highways 60 and County I (located 20 miles north of Milwaukee, west of Grafton). Contact: Joe Holly, ORC Swapfest Chairman, 1702 Holly Lane, Grafton, WI 53024. (414) 377-2137 or Skip Douglas (414) 284-3271. Note: Area code will change to 262 after September 1999.

SATURDAY, JULY 8, 1999. South Milwaukee Amateur Radio Club Swapfest, American Legion Park, Shepard Avenue, South Milwaukee, WI. Contact South Milwaukee ARC, P.O. Box 102, South Milwaukee, WI 53172. (414) 762-3235.

See also the back page and watch for flyer ads for additional information on many of these events.

Let us know of your dates as soon as you know them. We will list them and perhaps help avoid conflicts with other events.

As a service to our readers, this section of Badger State Smoke Signals is available without charge to list your upcoming Swapfest, Hamfest, dinner, picnic, party or other event of interest to Radio Amateurs in Wisconsin and nearby areas. Send information on your event to Kenneth A. Ebneter, K9EN, 822 Wauona Trail, Portage, WI 53901. In addition, space is available at attractive rates on our advertising pages. For information on rates and requirements for our advertising pages, please contact K9ZZ or K9EN.

CLUB MEETINGS

Due to space limitations, we cannot always carry the full listing of Wisconsin and area club meetings. Please see the July 1999 meetings column for the latest complete listing. The following changes have been reported to BSSS since that listing.

FOX CITIES AMATEUR RADIO CLUB
Third Mon. - 7:00 p.m. - Columbus Club, Appleton, WI.

If your club has no listing, or the latest listing is incorrect, please contact K9EN at the address shown on page 2.

The Test Point

Amateur Radio Examination Locations and Schedules in the Wisconsin Area

September 04, 1999	Oshkosh (Omro), WI	
September 04, 1999	Racine, WI	
September 04, 1999	St. Paul, MN	
September 09, 1999	Apple Valley, MN	
September 11, 1999	Blaine, MN	
September 11, 1999	Madison, WI	
September 11, 1999	Onalaska, WI	
September 11, 1999	Sheboygan, WI	
September 18, 1999	Cottage Grove, MN	
September 18, 1999	Loves Park, IL	
September 18, 1999	Milwaukee, WI (BE)	
September 21, 1999	Eden Prairie, MN	
September 25, 1999	Bloomington, MN	
September 25, 1999	Milwaukee, WI (MRAC)	
September 25, 1999	Tomahawk, WI	
October 02, 1999	Oshkosh (Omro), WI	
October 02, 1999	Racine, WI	
October 02, 1999	St. Paul, MN	
October 09, 1999	Blaine, MN	
October 09, 1999	Eau Claire, WI	
October 09, 1999	Madison, WI	
October 14, 1999	Apple Valley, MN	
October 16, 1999	Cottage Grove, MN	
October 16, 1999	Loves Park, IL	
October 16, 1999	Milwaukee, WI (BE)	
October 16, 1999	Oshkosh, WI (R.A.W.)	
October 19, 1999	Eden Prairie, MN	
October 23, 1999	Bloomington, MN	
October 30, 1999	Milwaukee, WI (MRAC)	
October 30, 1999	Tomahawk, WI	
November 06, 1999	Menomonie, WI	
November 06, 1999	Onalaska, WI	
November 06, 1999	Oshkosh (Omro), WI	
November 06, 1999	Racine, WI	
November 06, 1999	St. Paul, MN	
November 11, 1999	Apple Valley, MN	
November 13, 1999	Blaine, MN	
November 13, 1999	Madison, WI	
November 16, 1999	Eden Prairie, MN	
November 16, 1999	Sheboygan, WI	
November 20, 1999	Cottage Grove, MN	
November 20, 1999	Loves Park, IL	
November 20, 1999	Milwaukee, WI (BE)	
November 27, 1999	Bloomington, MN	
November 27, 1999	Milwaukee, WI (MRAC)	
December 04, 1999	Oshkosh (Omro), WI	
December 04, 1999	Racine, WI	
December 04, 1999	St. Paul, MN	
December 09, 1999	Apple Valley, MN	
December 11, 1999	Blaine, MN	
December 11, 1999	Madison, WI	
December 18, 1999	Cottage Grove, MN	
December 18, 1999	Loves Park, IL	
December 18, 1999	Milwaukee, WI (BE)	
December 18, 1999	Oshkosh, WI (R.A.W.)	
December 21, 1999	Eden Prairie, MN	
Monthly, 1st Sat. (except January, July & August)	Racine, WI	
Monthly, 1st Sat.	Oshkosh (Omro), WI	
Monthly, 1st Sat.	St. Paul, MN	
Monthly, 2nd Thu.	Apple Valley, MN	
Monthly, 2nd Sat.	Madison, WI	
Monthly, 2nd Sat.	Blaine, MN	
Monthly, 3rd Tue.	Eden Prairie, MN	
Monthly, 3rd Sat.	Milwaukee, WI (BE)	
Monthly, 3rd Sat.	Loves Park, IL	
Monthly, 3rd Sat.	Cottage Grove, MN	
Monthly, 4th Sat.	Bloomington, MN	
Monthly, Last Sat. (except June, July & August)	Milwaukee, WI (MRAC)	
Monthly, Last Sat. (January thru October only)	Tomahawk, WI	
Quarterly (Second Saturday Jan., Apr., & Oct. plus annual summer hamfest.)	Eau Claire, WI	

Many Swapfests/Hamfests offer exam sessions. If not shown

Badger State Smoke Signals

Amateur Radio Education and Information

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Subscriptions

1 year	(12 issues)	$13.95
2 years	(24 issues - save $1.95)	$25.95

Subscription form is on page 5. Special club package reduced rates are available. For information, contact Ken Ebneter, K9EN.

When to Send It

The closing date for each issue is the first of the month for the next month's issue. For example, the closing date for the June issue is May 1. The only exception is for participating clubs' minutes. Participating clubs are requested to send their material no later than FIVE DAYS after the club's meeting. For example, if a club meets on the 4th of the month, the material should be sent no later than the 9th of that month. This material is to be sent to the Editor.

Where to Send It

Address changes and corrections, and exchange papers should be sent to Ken Ebneter.

Editorial material, photographs, and feature articles should be sent to Jim Romelfanger.

Inquiries about advertising should be directed to Ken Ebneter.

Club, swapfest, and Test Point information should be sent to Ken Ebneter.

Swapfest ADS should be sent to Jim Romelfanger NO LATER THAN EIGHT WEEKS BEFORE THE EVENT'S DATE.

Subscriptions should be sent, with check or money order, to Ken Ebneter.

Conditions for Reprinting or BBS Posting Material from Badger State Smoke Signals

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Badger State Smoke Signals is incorporated as a Wisconsin non-stock, non-for-profit organization.

Editorial Disclaimer

The opinions expressed in editorials, guest editorials, columns, articles, and letters from readers are the opinions of the authors only, and do not, unless otherwise stated, express or imply endorsement by *Badger State Smoke Signals*, or by any other individual or organization.

contact the sponsoring club in the Swapfest column on page 2.

The FCC now requires applicants to show their ORIGINAL AMATEUR LICENSE to the VEC. A copy of your license must be attached to your FCC form 610. You will also be required to have a photo ID, or other acceptable identification.

GENERAL RULES
FOR MOST EXAMINATIONS:

Be sure to check with sponsors in the event there are changes and/or errors in the dates or information given.

Some examinations require filing an FCC Form 610 and advance registration at least 30 days before the exam date. (Some VECs permit walkins. Check with sponsor.)

To register, you must first secure a copy of the current FCC Form 610 and fill it out completely (AND CORRECTLY). Get your form from an FCC Field Office, the ARRL. Send a 32c/ SASE if you request one from the ARRL. In most cases, forms can also be obtained from the sponsoring group.

ARRL/VEC examinations require a check for $6.45 payable to "ARRL/VEC".

The FCC now requires applicants to show their ORIGINAL AMATEUR LICENSE or CSCE to the VEC. You must also have two good copies of your license or CSCE. A copy of your license or CSCE must be attached to your FCC form 610 and most VEC want a copy for their records. You will also be required to have a photo ID, or other acceptable identification.

Technician class licensees must show proof of testing before March 21, 1987, in order to upgrade to General with a code test only.

Additional information is given below.

For those with internet access, a listing of exam sessions is available from:

http://www.arrl.org/arrlvec/examsearch.phtml

By checking this page, a person can find out registered VE sessions anywhere in US and some overseas. You can search by country, state or zip code. The listing is not specific to any particular VEC, it is a master database. (Thanks to KB9EQI for information.)

MILWAUKEE RADIO AMATEURS' CLUB
(MRAC/VEC)
LAST SATURDAY - MILWAUKEE, WI

LAST SATURDAY: (except June, July and August): 9:30 a.m. to 12:00 noon at Amateur Electronic Supply (AES), 5710 W. Good Hope Rd., Milwaukee, WI. Note: For Additional Information: Call (414) 797- MRAC (Answering Machine). or (414) 797-6722.

Bring along your ORIGINAL license, CSCE (if any) and one (1) good quality photocopy of each, plus two forms of identification, such a driver's license, etc. Also required is $6.40 for the exam fee. WALK-INS are welcome. To register in advance, use a post card: Print the grade of license you are applying for, your name, address, and telephone number. Send the card to MRAC/VEC, Milwaukee Radio Amateurs Club, PO Box 25907, Milwaukee, WI 53225.

BADGER EXAMINERS (BE) - MILWAUKEE

Badger Examiners group tests at AES (Amateur Electronic Supply) at 60th and Good Hope, every third Saturday MORNING. Exam times are 9:30 a.m. to 12:00 noon, at the old Sterman Printing shop, just 300 feet west of the AES store. Novice to Extra are offered, and all test materials are provided. Fee is $6.35, and bring your original license, or CSCE if needed. Also available are Commercial license exams GROL (General Radiotelephone license), GMDSS,. Telegraph, Etc. Fee is $35.00. For more information call Gary Sharbuno, WI9M at (414) 355-0237.

MADISON, WI

VE exams are held in Madison every second Saturday morning of the month at 8 a.m. They are held at the operations building of the Madison Metropolitan Sewerage District at 1610 Moorland Rd. To get there take the Beltline (Hwy 12 & 18) to South Towne Drive. Go south 8/10 mile till South Towne Drive makes a bend and becomes Moorland Rd. and enter at gate.

You should bring a picture ID, your original licence and a copy of your licence. For exams beyond the novice tests, bring a check for $6.35, made out to the ARRL/VEC. If the special 610 form with the medical exemption is required, contact me beforehand to obtain one. No appointments are necessary to take exams. For further questions, please leave a message on the mailbox or phone me at (608) 832-6631.

Mark Jenks, NZ9B

STEVENS POINT, WI

ARRL Exams in Stevens Point, Time: 0930. Place: A107 Science Building, on campus at UWSP (corner of Fourth and Reserve streets) For more information contact Joe Larson, N9JW, at 715- 344-1182 evenings or email to joel8@bigfoot.com.

RACINE, WISCONSIN - ARRL/VEC

Monthly - first Saturday, except January, July, and August.

Monthly exams are given 9:00 to 11:00 a.m. at the Faith United Methodist Church, 1013 Harmony Drive, Racine. Walkins are permitted. Talk in on 147.87/.27. Inquiries and registrations should be directed to Robert N. Jensen, WOWLN, 5616 Cambridge lane #6, Racine, WI. Telephone (414) 886-8551.

TOMAHAWK, WI

Last Saturday of every month. Jan. thru Oct.

Tomahawk Volunteer Examiners (ARRL/VEC). Tomahawk, WI. No preregistration required, but appointment would be appreciated. Registration at 8:30 a.m. and testings starts at 9:00 a.m. For location or other information, inquire on 145.43 MHz. repeater or contact: Terry Collins, KB9AUP, W6564 Highway 8, Tomahawk, WI 54487. Telephone (715) 453-4633.

APPLETON, WI - ARRL/VEC
MANITOWOC, WI (HAMFEST)
KAUKAUNA, WI (HAMFEST) Conducted by the Fox Cities ARC VE team. All test sessions in Appleton are held at James Madison Jr. High, 2020 S. Carpenter Street. Testing starting at 8 a.m. For Appleton information, contact George R. Croy, W9MDP, 2113 Twin Willows Drive, Appleton, WI 54914. (920) 730-0967. For Manitowoc or Kaukauna information, contact Larry Siebers, KD9IA (920) 759-1167.

OSHKOSH (OMRO)

The Oshkosh VE Team will administer Amateur Radio exams monthly on the first Saturday. Registration begins at 8:30 a.m. and exams will be given from 9 a.m. until noon at the Omro Community Center, 130 W. Larrabee, Omro, WI. Walkins welcomed. Bring a good quality photocopy of your original license and any other necessary documents such as a CSCE, etc. The first session will be through W5YI/VEC, and then sessions will alternate between ARRL/VEC and W5YI/VEC. The exam fee is $6.35. For more information, please call Dick Lemme, K9FA, at (920) 235-0987, e-mail lemme@vbe.com, or write Dick at 826 Jefferson Street, Oshkosh, WI 54901.

OSHKOSH, WI (R.A.W.) - (W5YI/VEC)

October 16, 1999, December 18, 1999. Sponsored by Radio Amateurs of Wisconsin (R.A.W.) Testing sessions at UW Oshkosh, College of Nursing Building, 845 Algoma Blvd., Room 211, Oshkosh, WI. Park free in lot 29 on side of building or in lot 25 behind the building. Registration start at 9 a.m. $6.35 per test. Bring 2 forms of id etc. Walkins are welcome. Contact: Mark Miller, N9WT, (920) 231-1662 or Mike O'Conner, K9II (920) 231-7093.

EAU CLAIRE, WI

The Eau Claire ARC will hold exam sessions on the second Saturday in the months of January, April, and October, as well as on the date of their annual hamfest during the summer. For more info: Steve Bluem KA9OMY 715-839-6509

SHEBOYGAN, WI

All sessions will be held in the Red Cross building, 2023 Erie Avenue, Sheboygan, WI, in the SCARC meeting room on the lower level of the building. This area is not readily handicapped accessible. In the event there is a candidate who would be affected by this situation, we will accommodate that person in one of the Red Cross conference rooms on the main level of the building which IS handicapped accessible. Pre-registraton is necessary (we don't want get caught sort!) Contact: Art Pahr, K9XJ, N8209 Willow Road, Plymouth, WI 53073-2929. (920) 876-2370. e-mail <k9xj@excel.net>

ONALASKA, WI (ARRL\VEC)

The Riverland Amateur Radio Club will hold test sessions at the Onalaska Public Library,741 Oak Avenue South. registration begins at 9:00 a.m. Please bring two forms of identification and two copies of all original documents, CSCEs, license, etc. For more information contact: Roger Reader, KA9BKK, 526 13th Ave. N., Onalaska, WI 54650. (608) 783-0723.

MEDFORD, WI (ARRL/VEC)

Taylor County Area AREC,. Registration starts 8:30 a.m., testing starts 9:00 a.m. Location: The conference room in the lower level of the Sheriff's annex to the Taylor County Courthouse, corner of 2nd and Ogden Sts., Medford, WI. Take Ogden St. west off of Hwy. 13 to the courthouse. Park in the lots on the east or south sides of the courthouse or on the street. PLEASE use the entrance on the south side of the courthouse and watch of the signs. Walk-ins welcome. Contact: Tom Hrdina, N9GEN, 2373 Willow Ave., Medford, WI 54451. (715) 748-4054

PEWAUKEE, WI

The location is a little more handicap accessible, room S112 in the back of the science building by the handicap parking entrance. WCTC is on Hwy JJ off Hwy 16 from the East I-94 and Hwy T from West I-94 just north of GE Medical Systems. Tests start at 9:00 AM and registration ends at 10:00 AM. Contact: Al Johnson, AA7CS, (414) 568-0836; Roger Bradley, AA9OJ, (414) 691-3089 or SEWFARS Repeater club c/o Jam Lazachek, KF9GG (414) 650-0724.

HUDSON, WI (ARRL/VEC)

Sponsor: St. Croix Valley AR Testing Col. Time: Call for time and walk-in info, Contact: Gregory Miller (715)386-9857

Location: St. Croix County Emergency, Government Center by jail, Carmichal Rd. lower level, Hudson, WI 54016. (Information tnx ARRL Web site)

FRIENDSHIP, WI (ARRL/VEC)

Sponsor: Adams County ARC. Location: Adams-Columbia electric Cooperative (Community Room), 410 E. Lake St., Friendship, WI 53934. Contact: Karl Simonson, KB9EQI, (608) 565-6533. kb9eqi@iname.com

CEDARBURG, WI - ORC HAMFEST
EAU CLAIRE, WI - ECARC HAMFEST
GREEN BAY, WI - ARES HAMFEST
HAYWARD, WI - HAYWARD HAMFEST
KAUKAUNA, WI - SWAPFEST
MANITOWOC, WI, LAKESHORE HAMFEST
OAK CREEK, WI - SMARC HAMFEST
RACINE, WI - RACINE HAMFEST
RHINELANDER, WI - NWARC SWAPFEST
ROCKFORD, IL - RARC HAMFEST
ROTHSCHILD, WI - WVRA HAMFEST
SOUTH MILWAUKEE, WI - SMARC HAMFEST
STEVENS POINT, WI - CWRA SWAPFEST
WAUKESHA, WI - KMRA SWAPFEST
WAUKESHA, WI - MIDWINTER SWAPFEST
DUBUQUE, IA - HAMFEST

See the Swapfest column for additional information and contact persons.

DUBUQUE, IA - ARRL/VEC

Dubuque Hamfest. Contact: Carl Clark, N0KAX, 2145 Delicia Drive, Dubuque, IA 52001. (319) 557-9149.

ROCKFORD/LOVES PARK, IL

Third Saturday of every month.

Northern Illinois Volunteer Examiners (W5YI VEC). Held at North Suburban District Library, 6340 North Second St. (Hwy. 251), Loves Park, IL. 9:00 a.m. to noon. No new applicants after 11:00 a.m. Walkins welcome. Contact: Rusty Cordell, WB9QYV. 1823 Hulin St., Rockford, IL 61102-2619. (815) 968-0080. e-mail WB9QYV@aol.com

MINNESOTA TEST INFORMATION
From "The Ground Wave", Saint Paul Radio Club.

Saint Paul Radio Club (SPRC)
Contact: Ed VanCleave, W0VC, (612) 636-0108
Test Site: St. Paul Technical College
235 Marshall Ave.
St Paul, MN
TESTING: First Saturday of the month, 8:30 a.m.

Anoka Amateur Radio Club (AARC)
Contact: Craig Johnson, AA0ZZ (612) 483-3143
Test Site: Blaine City Hall
9150 Central Ave NE
Blaine, MN
TESTING: Second Saturday of the month, 9:00 a.m.

Bloomington Office of Emergency Management
(Bloomington Amateur Radio Club (BARC))
Contact: Dan Royer, KE0OR (612) 888-9756
Test Site: Fire Station No. 1
94th St. & Nicollet Avenue S.
Bloomington, MN
TESTING: Fourth Saturday of the month, 9:00 a.m.

Valley Amateur Radio Club (VARC)
Contact: Bill Martin, AI0D (612) 432-0438
Test Site: Hayes Community Center
14601 Hayes Road
Apple Valley, MN
TESTING: Second Thursday of the month 7:00 p.m.

W5YI Group
Contact: Dave Ranney, N0AXL (612) 542-2553
Test Site: Eden Prairie Library
479 Eden Prairie Drive
Eden Prairie, MN
TESTING: Third Tuesday of the month 6:30 p.m.

SE Metro Area Radio Club (SEMARC)
Contact: Dave Harrell, K0BTE (612) 459-8678
Test Site: Cottage Grove fire Station
8641 80th ST., S
Cottage Grove, MN
TESTING: Third Saturday of the month, 9:00 a.m.

The times and places listed above are the usual time and place for each VE team. Occasionally, sessions are canceled or changed. It is a good idea to call ahead to confirm the test time and place.

This section of Badger State Smoke Signals is available to publicize your Volunteer Examiner Amateur Radio license examination schedules. Please send us your schedules of dates, times, and locations that you will be conducting examinations and we will include the information here. Be sure to include contact address and any other necessary requirements. Information should be sent to K9EN at the address shown on page 2.

WANTED: CB test equipment. B&K 1040, B&K 2040 and Sencore CB-42 and accessories items. Parts units ok. (715) 238-7476.

FOR SALE: Colorful United States Stamps. 100 all different. $1.00 postpaid. Richard Regent, K9GDF, 5003 South 26th St., Milwaukee, WI 53221.

From "Key Klicks" via the ARNS Bulletin

I started with nothing... I still have most of it.

Funny, I don't rember being absent minded.

If all is not lost, where is it?

Hamfest Minnesota to headline FCC's Hollingsworth

Federal Communications Commission Enforcer Riley Hollingsworth, K4ZDH, will headline the 15th annual Hamfest Minnesota and Computer Expo October 30 at the Saint Paul River Centre, St. Paul, Minnesota. Over a dozen timely seminars, top manufacturers, including Yaesu, Kenwood and Icom, a huge indoor flea market, and over $5,000 war chest in prizes, highlight the largest Amateur Radio event in the Midwest.

Riley Hollingsworth, who began spotting FCC-violating amateur operators in recent years, will relate the problems he has witnessed in his Amateur Radio investigations, and what FCC's goals of cleanup of the amateur bands are. Large fines and even complete amateur license revocations have resulted from his initial enforcement efforts in the amateur radio service.

Some twelve other seminars include Y2K, computer topics, and one featuring American Radio Relay League Executive Director David Sumner, K1ZZ, speaking about new directions in amateur radio for the year 2000 and beyond.

Hamfest Minnesota is expected to attract some 5,000 Amateur Radio and computer enthusiasts from throughout the Midwest and Canada.

Dozens of manufacturers and retailers of Amateur Radio and computer equipment will try to satisfy the commercial appetite of area electronic enthusiasts. Amateurs wanting to upgrade their license class or persons who want to be tested for their initial amateur license will have that opportunity.

Hamfest Minnesota began as a small show at Richfield High School 15 years ago, and now dominates the St. Paul River Centre.

Proceeds from the show are used to support the sponsoring Twin City FM Club and other local Amateur Radio activities. Tickets are available at local electronics stores and amateur dealers and by mail. More information: Mark Roberts, (651) 460-6050 or **n0pfy@pclink.com** or Twin Cities FM Club, Box 16245, St. Paul MN 55116. ❑

FOR SOME PEOPLE

MORSE CODE: THE ONLY WAY TO TALK!

Dr. Tom King, WF9I, has authored and published a book titled "Modern Morse Code in Rehabilitation and Education". Tom is a certified speech language pathologist and special educator at UW-Eau Claire. He has decades of experience in helping people with severe communication challenges. He's an expert in Morse code and has an Amateur Extra Class license.

Morse code, while 160 years old and considered to be "outmoded", still has applications in some areas. Tom has found a most important one: by "marrying" old technology to new technology, those who have no other way to speak can have a voice. It isn't possible for those of us who have the usual set of communications skills to even imagine what it must be like for someone who has not been able to speak at all to converse with others. Tom found a way to make it happen. Samuel F.B. Morse was the key. And a computer is the sounder.

The book is 288 pages in length, and priced at $36.00. To talk with Tom (not for orders!), email:

kingtw@uwec.edu or visit

uwec.edu/academic/cdis

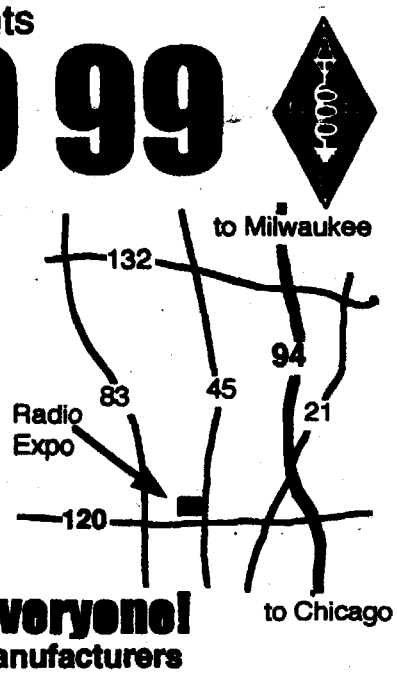
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Product Assessment

By Sherm Carr, W9NGT

Radio Shack Models HTX-212 and HTX-242 2 Meter Transceivers: Features and Performance

How and why this "epistle" came to be requires some explanation.

Some time after I retired from the severe weather business, eight Motorola receivers, two 60 watt Motorola transmitters, plus a control system with illuminated pushbuttons, a muting system, a COR operated annunciator panel, plus about a mile of assorted shielded cables, suddenly became surplus. Then, with exquisite timing, came the circus train operation, just after I had all that stuff unwired. I suddenly was fresh out of equipment, which I needed badly, like almost immediately.

Of all the gear available, the 2 meter rig from Radio Shack looked the best, so I bought it, especially since I had the option to return it for full credit if it didn't do the job. It has proved to be a real gem, and well deserves some complimentary rhetoric. Besides, it was nice to acquire something brand new for a change. The Motorola gear, picked up at swapfests, although top notch, always had to be restored to stock condition before I could use it, after some pseudo expert tried to improve the design.

I had to put together a "kluge" to interface W9ATK's Motorola phone patch with the new rig, and to use the desk mike and operate the remote, plus a 24 dB adjustable pad for the correct audio levels both to and from the phone line. I didn't tell anyone that I switched from Motorola to Radio Shack. I could monitor the audio coming back from Baraboo and into the line, and it was sharp and clean; also, comments from the train and the other end of the phone line were quite complimentary, so all was cool.

Some time ago, the IC-27A in my car developed a bad receiver volume control. Not having a replacement pot, and not being inclined to dig into that rig, I bought another Radio Shack unit. The IC-27A is now surplus too. A bad volume control, after some 20 years of operation, in four vehicles, (and I bought it used), I would consider pretty fair reliability.

The first rig acquired is the model HTX-212. The second one is the model HTX-242. As far as I can tell, they are identical except for a couple of details.

This "evaluation" is not in any way to be construed as a "Product Revue" such as one often sees in the publications, with their "Lab Analyses", plus other pseudo-scientific prattle. Those "revue-ers" are keenly aware of where their advertising dollars come from. If they ever offer anything other than a very mild criticism, they would most likely be fired. Nope. This came about from a friend's inquiry reference the subject radios. When I finished, he said it sounded like a "product revue".

In spite of that comment, we're still friends. This is my personal assessment of the performance of two such units in the real world, under real world conditions, such as minus 30 to plus 140 degrees F, in the vehicle, 24 hour a day operation of the base station unit, during both calm and severe weather. The only tests with actual instruments were power checks with my Bird wattmeter, and a frequency counter that WWV assures me is within 20 cycles. (I'm from the old school.) One test was in my basement, which could never - by *any* stretch of imagination - be considered a "lab", and the other was in my driveway, the really "real" world, especially when it is snowing.

First, the units are made by ICOM. I recognized the ICOM programming protocol immediately. It has a diagnostic EPROM that checks all functions when the radio is turned on, and there are so many features built in that any one operator will probably never use them all.

It uses 2 VFOs, 40 memory channels, and the HTX-242 has a special call, or paging, feature. It has PL on transmit and receive, which can be enabled or disabled from the panel. If the channel is changed it reverts to the programmed setting. DTMF coding is provided, in several modes, 2 power levels, (10 and 45 watts) extended receiving frequency range, (136 to 174 MHz) and extended transmit range, (142.500 to 149.500 MHz). Frequency change steps are variable from 5 to 100 KHz

Continued on page 5

Radio Shack HTX-212 and HTX-242 Product Assessment

Continued from page 4

per step.

A priority channel (channel one) can be checked automatically every 4, 8, 12, or 16 seconds. Choice is a beep to indicate priority channel traffic, or to stay, or stay a chosen time, then return to the channel in use.

A time out timer option beeps and shuts off the transmitter when time is up. Timer duration options are 1, 2, 3, 5, 7, 10, or 15 minutes. As supplied, the time out option is disabled - a neat feature to keep the motor-mouths from timing out repeaters. However, from what one hears on many repeaters, this option will never fail from overuse. The only time some repeaters are quiet is when they're timed out.

The diagnostic EPROM puzzled me for a day or two. In the car, the radio shut off several times, and once refused to turn on. It checked out fine on the desk with the other unit, and a step by step checkout left the external speaker as the only item left. After it was replaced, the radio worked fine. Turns out that the EPROM looks at the speaker circuit, and if all is not well, it shuts down. The external speaker jack is a 1/8 inch type, and being too lazy to install such a plug on the speaker leads, I used an adapter from 1/8 plug to RCA jack. When the adapter is plugged in, the internal speaker is disconnected. The Motorola speaker had been used in three vehicles, and apparently had finally become intermittent. That picky EPROM evidently heard something I didn't.

Unless a non-standard repeater offset is chosen, the unit automatically selects the proper offset frequency, whether plus or minus.

Any repeater channel, either VFO or memory, can be inverted or simplexed. That is, transmit on output, listen on input, transmit and receive on either input or output.

The unit can scan and store in memory all active repeaters in a selected range, or the entire band if desired, up to the 40 channel limit. It will also scan a selected range, or the entire band, if desired. Also, certain channels can be locked out if desired. It will stop on an active channel, and either stay there until the transmission ends, plus two seconds to monitor any reply, or stay until told to resume scanning. Both models interface with a packet terminal node controller, with the special mike jack (Radio Shack catalog 279-440), an eight conductor connector. Nothing else is needed. How fast it can spit and digest data is unknown, but there is virtually no inductance in the audio circuits on both transmit and receive, so it must be pretty speedy.

As to performance:

As mentioned, the HTX-212 has been on continuously, except for rare power outages, for almost three years, without malfunction of any kind. With the HTX-242 in the vehicle, except for my argument with the diagnostic EPROM, performance has been flawless. I deliberately left it on for nearly a week after the EPROM incident, where daytime temperatures in the vehicle soared to 140 plus degrees F. Standby current drain is about 500 ma.

With a four element beam, I can access the Wausau 22-82 repeater, from Hartford, with a useable signal. I can talk to Baraboo from my driveway, with a 5/8 wave whip on the car. I can use Motorola microphones with both units, although the electret mikes supplied sound very good. ICOM has solved the weird response curve of the electret; consequently, the audio compares very favorably with the $85.00 Motorola mikes.

Power output specs are conservative. Dummy load tests using a Bird Model 4304 reflectometer type directional wattmeter, showed 13 watts low power, and 49 watts high power, for both units, from a 13.8 volt supply. The HTX-242, in the Buick, with the engine running, showed 53 watts. After two hours of key down, at full power, unit heatsinks were only warm to the touch, with ambient temperature under 80 degrees F. Higher or lower ambients may alter conditions somewhat, but vehicle inside temperature that hit 144 degrees F didn't bother the unit. Frequency stability for both units was within 130 cycles. (Old school terminology). Neither unit seemed to care whether it was hot or cold.

The built in speaker has a relatively low distortion ceiling, but with a good five or ten watt external speaker, the audio is clean well beyond normal listening levels. The base station unit drives two speakers, one on the desk, and one in the remote. However, if interest leads to purchase, and if purchase involves an external speaker, and if said speaker is in a metal enclosure, it should be stuffed loosely with open celled polyurethane foam, such as that used for shipping fragile components. Otherwise it will exhibit all the acoustical attributes of a one pound coffee can.

"Intermod Alley" performance is pretty good also. Attenuation of intermod spurs, and adjacent channel rejection is better than 70 dB, which is not too shabby. Going through the repeater, I can talk to and hear the car right in front of me on the highway without the need to go simplex. That means that front end overload is not a problem.

Finally, the owner's manual is written in plain language, a welcome switch from the murky, translated manuals of yesteryear. The clear instructions, plus the excellent programming protocol got me going in less than half an hour. That's a record---for me.

The HTX-212 uses a green back lit liquid crystal display panel. The HTX-242 display panel is orange, which is visibly better in the car at night. And it has the DTMF paging feature; the HTX-212 does not. Otherwise, the two units are identical. I ordered and received the service manual, catalog 19-1126: cost, $16.29 plus 2 bucks for shipping. Although labeled for the HTX-242, it will also service the HTX-212, except for the paging feature. I'm told that the HTX-212 is probably no longer available unless there is one on the shelf somewhere.

The only grumble I can generate is that programming and setup can be accomplished several different ways. However, I found it expedient to combine methods, which requires switching back and forth between several pages, an option that will occur immediately to most anyone. I pasted some tabs on the pages in use, which helps. This eliminates the mental gymnastics required to memorize everything, which, at my age, I diligently try to avoid.

Last, I couldn't begin to list all the gizmos and features. There are 39 pages of them in the owner's manual. I am told, however, that Radio Shack store folks will allow one to page through the manual, if desired. ❑

IT WAS ONLY A TEST

"Tornado" strikes Spring Green

On Saturday, August 7, Sauk County Emergency Government and the City of Spring Green had a joint emergency preparedness exercise.

One of the participation groups was the Amateur Radio Operators of Sauk County. Three operators were present, KA9TBU, Maurey Gurgel, KB9NXG, Jim Brann, and WD9JIB, Peter Sweeney. The exercise lasted from 9:00 to 11:00 a.m. and took the Amateur operators through 4 different locations, with 20 total transmissions.

The basic function was to report and maintain a current status of the emergency units involved, and to track the arrival and departure of victims. The operators earned high marks from the Sauk County EG director for their accurate and timely reports.

A later review with the operators showed great enthusiasm and an honest review of how they could have done better. The most common comment was how they could improve the equipment for the next event.

Congratulations on a job well done.

Peter Sweeney, WD9JIB, EC Sauk County

Y2K Date Change

"Our staff has completed the 18 months of work on time and on budget. We have gone through every line of code in every program in every system. We have analyzed all databases, all data files, including backups and historic archives, and modified all data to reflect the change.

"We are proud to report that we have completed the "Y-to-K" data change mission, and have now implemented all changes to all programs and all data to reflect your new standards: Januark, Februark, March, April, Mak, June, Julk, August, September, October, November, December, as well as Sundak, Mondak, Tuesdak, Wednesdak, Thursdak, Fridak, and Saturdak.

"I trust this is satisfactory, because, to be honest, none of this Y-to-K problem has made any sense to me. But I understand it is a global problem, and our team is glad to help in any way possible. And what does the year 2000 have to do with it? Speaking of which, what do you think we ought to do next year when the two-digit year rolls over from 99 to 00? We'll await your direction."

Staff member at Macrohard
(Original author not known)

ULS for hams endures first-week jitters

The FCC's Universal Licensing System is up and running for the Amateur Service, although it didn't happen without a few wrinkles and some frustration on the part of hams trying to register or use the system. At one point on August 16 -- the first day the ULS was available to hams -- no one could access the system, even for registration. But the downtime lasted less than an hour, according to an FCC spokesperson. "The system itself has been running smoothly," he said. The system also was down briefly on Wednesday and Thursday.

Some hams reported slow response times in accessing the ULS to register or search the existing database information. Others found themselves confounded by the new system.

ARRL New England Director Tom Frenaye, K1KI, used the ULS this week to renew his license. "It wasn't a pleasant experience," he remarked, citing the complexity of configuring the dial-up connection required. "It's nice to renew on-line, but I'm glad I won't have to do it for another ten years." A Midwest ham equipped with a cable modem at first had decided he'd rather file a paper application than to take a step backward in technology. But he managed the dial-up connection and gave the ULS a tentative thumbs up. "It's certainly a snap once you've done it once, but I'm afraid the dial-up aspect will scare off most folks," he said.

The FCC has disabled the former on-line vanity Form 610V and renewal Form 900 applications and redirected all amateur applicants to the ULS page.

Even though all amateurs already are in the FCC database as licensees, ULS registration is a must -- before filing an application, renewing or modifying a license, or applying for a vanity call sign. Applications filed through a VEC automatically register the applicant

Please turn to page 15

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The Computer Corner

By Stan Kaplan, WB9RQR
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(414) 284-9346
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SKAPLAN @ MCW.EDU

No. 70: Moving Files between Computers

Moving files can be a pain. If there are a lot of them, the moving procedure might mean filling up a whole bunch of 3½ inch floppies, then copying the contents of each one of them to their new site on a second computer. This can be tedious, to say the least. To compound the problem, what happens when a single file is larger than the 1.44 Mbyte capacity of a floppy? How can it be done?

Let us explore all of the common possibilities so that you can choose what works best for you.

FLOPPIES: Already described above, this is the simplest answer, but tedious. You can get around the 1.44 Mbyte limit to file size by using PKZIP. Did you know that you can zip a file across several floppies? Let me give an example. Suppose you have a 4.2-Mb program named MYPROG.EXE on your desktop that you want to copy to your laptop. PKZIP may compress the file to perhaps 70% of its original size (to 2.94 Mbytes), but that is still much too large to put on a 1.44-Mb floppy. However, by giving the proper commands to PKZIP, it will not only compress the file, but it will also copy the compressed image to as many floppies as it takes. In our example above, it will put the first part of the compressed image of MYPROG.EXE on a floppy as MYPROG.ZIP, then ask you to insert a second floppy for the rest of the file. When done, you can reverse the process by having the companion program PKUNZIP.EXE uncompress the program from the two disks to your laptop. The technique will also work with multiple files, allowing you for example to ZIP an entire subdirectory for moving from one machine to another. I have used this method to fill and transfer over a dozen floppies worth of files at a time. PKZIP and PKUNZIP are safe and slick programs. Best of all, you can find free evaluation copies nearly everywhere. Try FilePile at execpc.com.

THE INTERNET: Sure! So long as both machines have modems and access to the Web, why not send the file over the Internet! It may take some time, but it works. Send the file as an attachment to an email message, and pick up the message with the second computer. Then click the attachment and tell your browser to save it as a file. Don't forget to put it in a subdirectory where you can find it. You can easily move it to its final resting-place later. The only caveat besides lack of speed for this method is that some Internet providers put a limit on the size of an email message (and attachments). The size limitation, when there is one, is often 1 megabyte.

DIRECT CABLE CONNECTION: This is almost certainly the fastest method, and it is ideal for getting stuff from your desktop to your laptop. You can purchase programs (LAPLINK and others) that supply you with the software and a cable. However, remember that we are hams and can do a lot of stuff that others can't! You can make your own cable, and you probably have the software lying around already! The remainder of this article will tell you how to "homebrew" your own file-transfer setup. It is easy and it works. The only caveats: 1. You need to be able to solder to create the cable. 2. You need to be able to work with your machine in DOS (I frankly do not know if the method will work from Win95/98, or even from a DOS box in either Windows program). I can tell you it does work from native DOS. Don't know how to get to native DOS in your Windows machine? See #39 in this series, HOW TO OPEN AND SHUT THE WINDOWS IN 95, February 1997. It is included in THE FIRST 48, a compilation of the first 4 dozen Computer Corner articles. Copies can be had by contacting Dave Barrow, N9UNR. So, fellow hams, here is how.

THE CABLE: All you need are two male DB-25 connectors and the wire. You will need to solder 11 connections at each end, and will therefore need 11 conductors. I made one the other day using 3 5-conductor cables (4 conductors unused) because that is what I had in my junkbox. It works like a charm! If you look carefully at the bare DB-25 connectors, you will see that each pin is labeled with an embossed number. Those numbers correspond to the numbers shown in the table below.

DB25 (#1)	DB25 (#2)
2	15
3	13
4	12
5	10
6	11
15	2
13	3
12	4
10	5
11	6
25	25

Pins 25 are ground. You will notice the others are symmetrical, which means that you can plug in either end of the cable to either computer ... it makes no difference. Just be sure you are plugging into the printer port on both machines.

Next, make sure the programs INTERLNK.EXE and INTERSVR.EXE are present on both machines; if not, copy them. These two programs came with MS-DOS 6.22 and are likely in the C:\DOS subdirectory of your old 286 gathering dust in the basement if not on your Windows machine. Decide which machine will be the client (boss!) and which will be the server (slave!). Execute the server program by typing INTERSVR and pressing the ENTER key. You will be presented with a special screen that covers everything else up; it will show you the status of transfers as you make them. Add the statement: Device=c:\dos\INTERLNK.EXE to the CONFIG.SYS file on the client machine and reboot it. You will be presented with a table that shows you how the drives have been remapped. For example, my client (laptop, boss) machine showed 3 new drives. Drives A: and C: were as usual (my laptop has no B: drive), but new drive D: was the A: floppy drive of my desktop machine, new drive E: was the B: floppy of the desktop and new F: was the desktop's C: (hard) drive. I could copy a file from my laptop's hard drive to the desktop's hard drive by typing the command: COPY (name of file) F: on the laptop keyboard. Alternatively I could copy a file from my desktop's root directory to my laptop with the command COPY F:\(name of file) C:, again using the laptop keyboard since it was the client (boss) machine. Slick. And FAST.

Some things to watch for. Make sure there is a LASTDRIVE=M line in the CONFIG.SYS file on both machines, just so DOS doesn't run out of drive letters to assign. Work with DOS to avoid several problems that will certainly crop up if you try to work through Windows of any vintage. Forget about trying to use programs such as CHKDSK, DISKCOPY, SYS, FDISK and others that work with disk drive hardware or file systems. Other than that, the interlink suite is really powerful and you can do just about anything with the server from the client's keyboard. Pretty neat, very useful, and FAST. Happy computing!

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Got a tale to tell? BSSS readers would like to read it! Snail it to Badger State Smoke Signals, 412½ Ash Street, Baraboo WI 53913, or to smokesigs@baraboo.com

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A really TOUGH quiz!

Here's the August BSSS Quiz which should have been in the August issue. It wasn't there, so we put it here.

Probably the most difficult part of this quiz will be reading its headline. No excuses, now! None later, either.

The prize for effort expended in answering all questions correctly is $20 from BSSS, along with a NASA photo you'll want to hang on your wall. It's such a great photo, you will not want to use it to swat flies.

Ready? Here we go.

(HINT: ALL ANSWERS ARE IN THIS ISSUE.)

1. In what city will the April 9, 2000 Madison Swapfest be held?

2. What is the "Rotor Doctor's" call sign?

3. What is the first name of the proprietor of Radio Recyclers?

4. In what Wisconsin city is Tower Electronics?

5. Does Amateur Electronic Supply have a toll-free telephone number to call for ordering stuff?

6. What brand name factory closeouts are sometimes available from Rich's Surplus in Stanley, Wisconsin?

7. Which repeater association sponsors an auction in February?

8. Does the Eau Claire Amateur Radio Club sponsor a swapfest?

9. What are the initials of the American Radio Relay League? (Hint: There are four letters.)

10. In or near what city is Lambeau Field, home of the Green Bay Packers, located?

Answers to this mind-boggling quiz will be accepted until September 30, 1999. You may send answers by snail mail to:

Badger State Smoke Signals
Jim Romelfanger, K9ZZ, Editor
412½ Ash Street
Baraboo, WI 53913-2501

or email to

smokesigs@baraboo.com

This quiz has been craftily designed to take no longer than ten minutes to answer.

Each entry will be hand-dated and time-marked as opened or received. The first one to arrive here at BSSS World Headquarters (my kitchen) with all questions answered correctly will receive the two prizes. We eagerly await the avalanche of answers! ❑

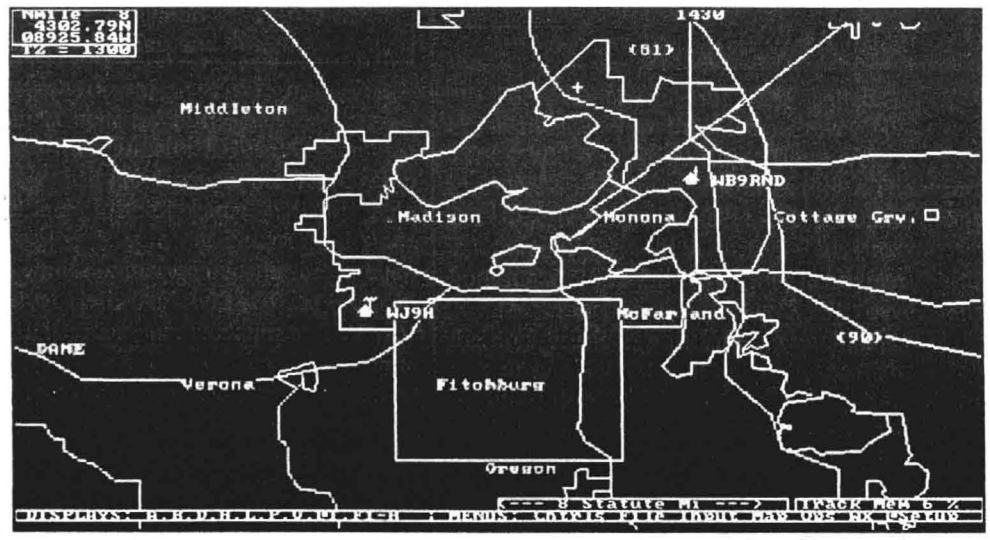
The Automatic Packet Reporting System

By Tom Weeden, WJ9H

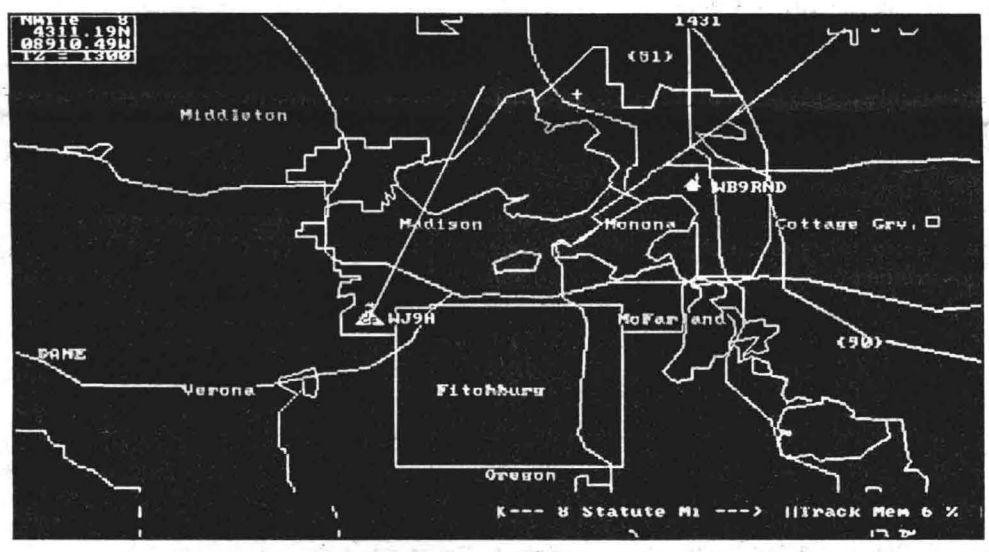
Part 7 - Direction Finding

In the last installment of this series on APRS, we discussed how to manually input data for plotting on your map display. This month we'll see how to use APRS for direction finding of transmitters. It can be done not just in the traditional "beam heading" method, but also by several stations using omni antennas, and by a single mobile station with an omni!

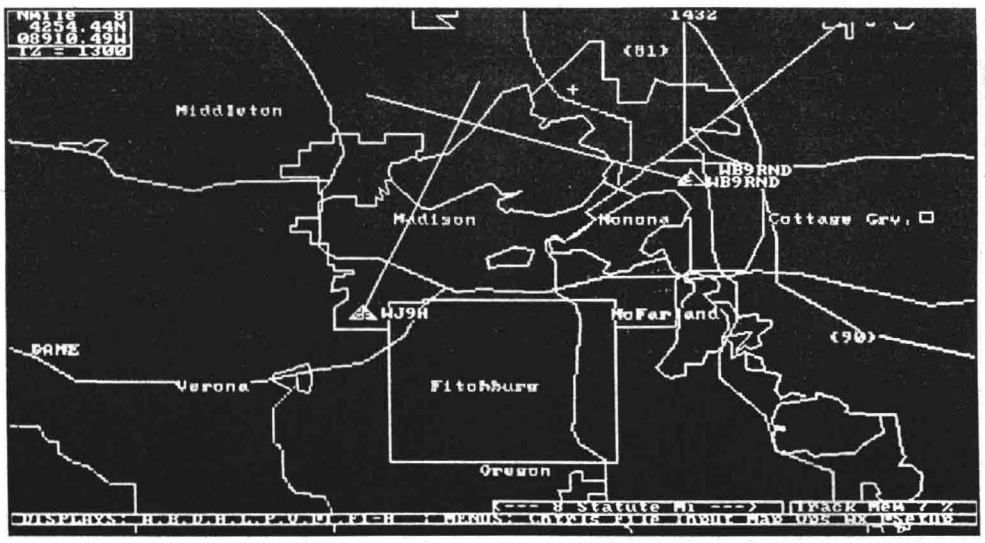
First, the method that most foxhunters are familiar with, triangulation. Here is a map of Madison showing two stations, mine on the southwest side of the city, and WB9RND on the east side.



Say I have a beam heading on the fox of 20 degrees. I would enter I (Input), D (DF), then my beam heading of 20. (We'll assume that the reading is degrees from true north. This can be done as a relative bearing if mobile, but let's not complicate things for now!). Finally, APRS asks for a signal quality rating from 1 to 8. I'll enter 8 for best visibility on my plot.



The map now shows my beam heading. Now I need the other station's beam heading. If that station is running APRS, he could enter his data as above and his beam heading would be shown on my screen when I received his packet. But for this discussion, I will enter the data of the other station. Place the cursor over the other station's QTH and press I (Input), A (Add Object), D (objects beginning with "D") and the number "1" (to pick "DF" on the list). Next APRS prompts for course and speed. Since the other station is stationary, enter 0 for both. Now enter the beam heading. Let's say WB9RND has a heading of 260 degrees on the fox. Enter 260, then a signal quality of 8. You can then enter optional comments, current time, and finally, "Y" (yes) to accept your entries (or "N" to start over). APRS will now plot WB9RND's beam heading.

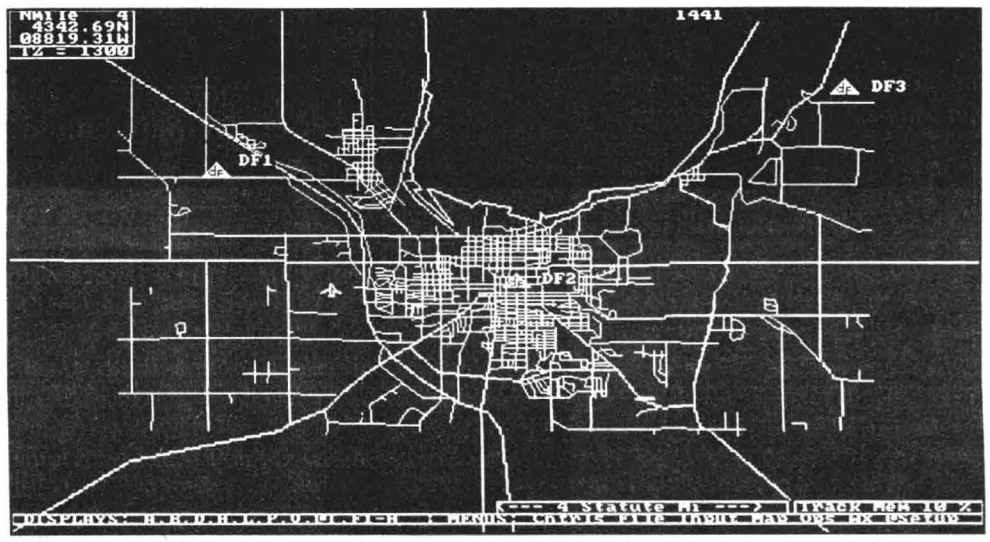


We can see that the two vectors intersect just northwest of the lake, the probable location of the transmitter.

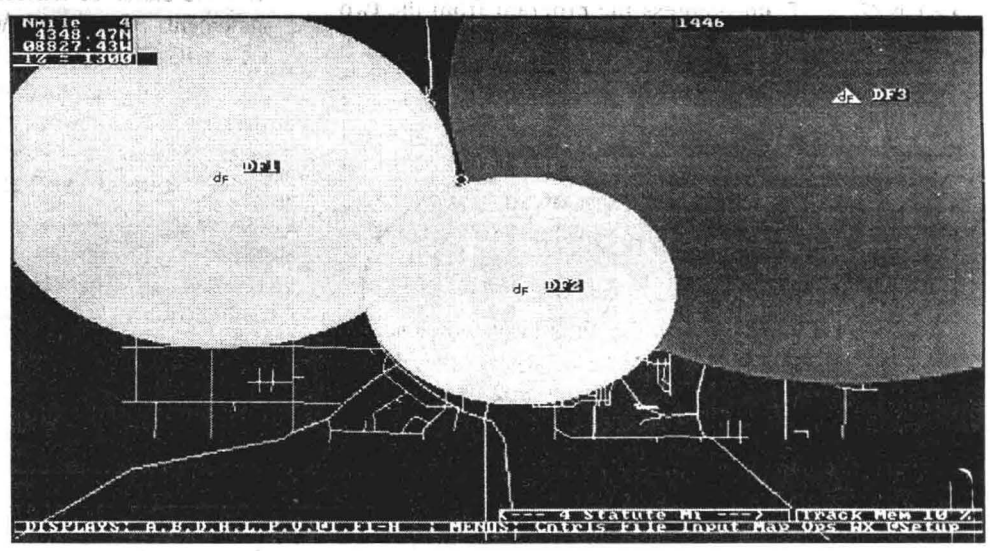
Now, let's look at how several cooperating stations can narrow down the location of a transmitter based just on signal strengths from omni antennas. Only one station needs to be running APRS. And as mentioned last month, APRS can be used as a stand-alone program if desired, without transmitting any packets.

In the case of omni-DFing, the more reports received, the closer the fox's location can be pinpointed. Even reports of NO signal are valuable. Here's why.

If you receive a very strong "needle-pinning" signal from a transmitter, you can assume that you are near the source of the signal. If you drew a circle with a relatively small radius around your location, the source would be somewhere near the edge of that circle (since you don't know which direction the signal is coming from). If another receiver, some distance away, heard NO signal, you could assume that the transmitter is not near that receiver. You could draw a circle with a relatively LARGE radius around that receiver, and assume that the transmitter is NOT inside that circle. As the number of reports increases, you would plot various-sized circles over a map, and could assume that the transmitter is near the intersection of the edges of all those circles. To illustrate, here is a map of Fond du Lac with three DF stations. Station DF1 has a signal strength of 4, DF2 has an S9+ signal, and station DF3 has a very weak signal which we'll rate as a 1.



Place the APRS cursor over the first DF station's location. Press I (Input), A (Add Object), enter the station's name (DF1), then D (DF), 1 (DF), 0 (Omni DFing), and a signal strength of 4. Next, APRS asks for the station's height above average terrain. Take the default of 20 feet by pressing <ENTER>, and do the same with antenna gain (3 dB). The next entry is for direction of best horizon. If you were on the side of a hill with the best view to the east, you would enter 90. This data is used to offset your omni antenna pattern slightly for calculations. In flat terrain, enter 0. Finally enter any optional comments, the time, and "Y" to accept your entry. Go through the same process for station #2, using a signal strength of 9. We'll assume station #3 is a pedestrian with a hand-held radio, so use a height of 5 feet and a gain of 0 dB. When all three stations' data have been entered, you can use the map plot function of APRS to draw the relative circles around the stations to narrow down the transmitter's location. Press M (Maps), P (Plot), D (DF), and O (Omni). Solid-colored circles will plot over each station. The transmitter will be located near the intersection of the edges of the circles.



Still with us? Here's the third DF method, which takes us back to high school geometry class. How do you find the center of a circle when you know the location of three points on the circle? (Hint: bisect the line segments formed by all the points.) Before you get out your compass and straightedge, remember that your computer can do the computations.

Please turn to page 15

TX RX SYSTEMS INC.

VARI-NOTCH® DUPLEXERS
FOR 2 METERS

The TX RX Systems Inc. patented Vari-Notch filter circuit, a pseudo-bandpass design, provides low loss, high TX to RX, and between-channel isolation, excellent for amateur band applications. TX RX Systems Inc. has been manufacturing multicoupling systems since 1976. Other models available for 220 and 440 MHz, UHF ATV and 1.2 GHz.



MODEL 28-37-02A
144-174 MHz
92 dB ISOLATION AT 0.6 MHz SEPARATION
400 WATT POWER RATING
19" RACK MOUNT

TX RX SYSTEMS INC.
Dave Barquist, K9PAK, Factory Representative
414-367-2929 or E-Mail txrx@electpdcts.com

Wisconsin Repeater List

Listed in order by frequency

Courtesy of the Wisconsin Association of Repeaters

The WISCONSIN ASSOCIATION OF REPEATERS is an organization of trustees and representatives of repeaters, state-wide, whose goal is mutual cooperation on the VHF UHF spectrum, in the voluntary spirit of Amateur Radio.

GENERAL FREQUENCY COORDINATION POLICIES

1. We attempt to place no two repeaters on the same pair closer than 90 miles on Two Meters, 70 miles on 222 MHz, and 60 miles on 440 MHz and up.
2. We attempt to place no repeater on a 15 kHz split pair closer than 40 miles to any adjacent 30 kHz standard spacing machine.
3. We not only assist proposed repeaters in finding a frequency where possible, but we actively attempt to protect coordinated repeaters' frequencies from interference whenever possible.
4. W.A.R. has suggested band plans for most of the FM spectrum, a subaudible tone plan for the State of Wisconsin and all necessary information for coordination of new or modifications to existing repeaters.

Contact the Frequency Coordinator: Dan Bolander, WB9TYT, Wisconsin Association of Repeaters, W9252 Beecher Lake Road, Beecher, WI 54156-9724. (715) 324-6701.

O	Carrier Access	PL	Sub-Audible Continous Tone
T	Touchtone	C	Closed Private Repeater
A	Autopatch	(CA)	Closed Private Autopatch
E	Emergency Power	L	Link and/or Crossband
P	Portable	R	RACES Affiliated
Z	Autopatch to Law Enforcement	X	Wide Area Coverage

Wisconsin Sub-Audible Tone Plan By Region

North Central - 2A, 114.8 Hz
North West - 2Z, 110.9 Hz
South East - 3A, 127.3 Hz
North East - 1B, 107.2 Hz
South Central - 3Z, 123.0 Hz
South West - 3B, 131.8 Hz

Standard Inputs Unless Otherwise Noted

-1.700 MHz for 6 Meters
-600 KHz below 147.00 MHz, +600 KHz TO 148.00 MHz for 2 Meters
-1.6 MHz for 220 MHz, and + 5 MHz for 440 MHz
421.25 MHz TV Video + 18 MHz 425.75 MHz TV Aural, + 9 MHz

LOCATION	Rg	OUTPUT	CALL	ACCESS		SPONSOR	Update=OK*
MILWAUKEE	SE	29.680	N9BBG	O PL127.3		W.E.R.A.	10/29/97
HOLCOMBE	NW	52.810	N9LIE	O PL110.9 E X		N9LIE	05/11/98
MILWAUKEE	SE	52.830	WN9HGB	O PL173.8		WN9HGB	07/08/97
WAUSAU	NC	52.830	N9MEA	O PL107.2 XL 146.06		N9MEA	12/20/98
EAGLE RIVER	NC	52.850	N9KXS	O		N9KXS	01/29/98
WAUSAU	NC	52.890	W9SM	O PL114.8		W.V.R.A.	07/10/98
ASHLAND	NW	52.950	KB9AMY	O CA E L X Z R		KB9AMY	04/29/98
MEQUON	SE	53.010	N9PMR	O PL103.5		N9PMR	04/02/98
ANTIGO	NC	53.050	N9TQO	O		N9TQO	06/09/98
MADISON	SC	53.070	N9KAN	O PL103.5 CAELZRA		S.W.R.G.	06/24/98
FORT ATKINSON	SC	53.090	AA9AD	O PL103.5LXWX RA		S.W.R.G	06/24/98
HILBERT	NE	53.170	KN9P	O		CARES	04/04/98
JANESVILLE	SC	53.190	KF9RU	O PL123.0 EX	*	KF9RU	06/09/99
WAUSAU	NC	53.450	W9BCC	O PL103.5		R.M.R.A.	09/01/98
MILWAUKEE	SE	53.030	WB9TRO	O PL103.5 E L		WERA	04/02/98
WABENO	NE	145.110	KF9DB	O PL107.2 E L147.27	*	NEWRL	06/09/99
MONROE	SC	145.110	NR9W	O PL114.8	*	G C ARA	06/09/99
RICE LAKE	NW	145.110	N9QWH	O PL110.9 AELXZWXR		N9QWH	08/19/98
HUDSON	NW	145.130	W9AVX	O CA R E		SCC RACES	04/02/98
MILWAUKEE	SE	145.130	N9LKH	O PL127.3 A E L Z		MAARS	07/09/97
SAYNER	NC	145.130	KB9CBL	O E L145.210		NWARC	05/11/98
APPLETON	NE	145.150	KF9CS	O	*	O CO REDX	04/09/99
MADISON	SC	145.150	N9EJC	O PL123.0 E		N9EJC	04/02/98
WEYERHAUSER	NW	145.170	KA0PZX	O E		MAGIC	06/10/96
WEST ALLIS	SE	145.170	W9FK	O A Z	*	WARAC	06/09/99
MANITOWOC	NE	145.190	WB9MFB	O PL107.2 E RA X	*	WB9MFB	04/09/99
MERRILL	NC	145.190	KX2DX	O PL114.8		M.A.R.G	05/20/98
SPOONER/HERTEL	NW	145.190	KB9OHN	O CA E Z L	*	BARS	06/05/99
BERLIN	SC	145.210	N9PAA	O PL123.0 X		N9PAA	07/10/98
RHINELANDER	NC	145.210	KA9BHL	O CA E L145.130		NWARC	05/11/98
MILWAUKEE	SE	145.230	N9BMH	O PL127.3 TT		N9BMH	05/15/98
MILWAUKEE	SE	145.250	KA9WXN	O PL127.3 DS		UW-M ARC	10/15/96
PLATTEVILLE	SW	145.270	KA9WBX	O A E		UWP ARC	06/17/96
LOHRVILLE	SC	145.270	KB9JJB	O PL123.0	*	KB9JJB	06/09/99
NEW RICHMOND	NW	145.270	N9LIE	O PL110.9 L X		N9LIE	05/11/98
ADAMS	NC	145.290	KB9JYT	O CA E Z WX TT		ACARC	05/15/98
ANTIGO	NC	145.310	KD9HH	O A E Z		KD9HH	04/04/98
BARABOO	SC	145.310	N9KXX	O PL123.0		N9KXX	07/11/97
APPLETON	NE	145.330	W9RIC	O PL100.0 F V		VHF A	05/11/98
OSSEO	NC	145.330	N9LIE	O PL110.9 L X		N9LIE	05/11/98
PEPIN	NW	145.350	KB9S	O		WAB ARS	10/08/97
ASHLAND	NW	145.350	KB9AMY	O CA E L X Z R		KB9AMY	04/29/98
RUBICON	SC	145.350	WB9KPG	O E	*	WB9KPG	05/10/99
SHAWANO	NC	145.350	KA9NWY	O PL114.8 E X R WX		KA9NWY	08/19/98
EAGLE RIVER	NC	145.390	KD9PT	O CA DS E Z		KD9PT	05/11/98
MILWAUKEE	SE	145.390	WB0AFB	O PL127.3 DS		MATC RC	04/02/98
TOMAH	SW	145.390	N9BOE	O PL131.8 CA EXZWX	*	N9BOE	05/10/99
NEW LONDON	NC	145.410	KB9QWC	O PL114.8		KB9QWC	07/01/98
TOMAHAWK	NC	145.430	N9CLE	O A E Z911 X		TOM RP A	05/11/98
FOND DU LAC	NE	145.430	K9IA	O PL107.2		F.A.R.A.	05/11/98
JANESVILLE	SC	145.450	WD9ACY	O		R.A.T.S.	05/09/97
HOLCOMBE	NW	145.470	N9LIE	O PL110.9 E L X		N9LIE	05/11/98
CRIVITZ	NE	145.470	K9ARF	O PL107.2 TT	*	ATHELSTAN	06/09/99
FORT ATKINSON	SC	145.490	WB9EMR	O A TT E L A WX Z		TCARC	10/29/97
SOLON SPRINGS	NW	145.490	K9ASC	O A E Z		DC RACES	08/19/98
GREENWOOD	NC	145.490	W9FPE	O PL110.9 E	*	W9FPE	07/31/99
RHINELANDER	NC	145.490	KB9AZM	O PL114.8		KB9AZM	05/15/98
MENOMONIE	NW	146.610	K9KGB	O A E L X Z R		CDR RA	08/19/98
BAYFIELD	NW	146.610	W9BCY	O CA	*	NARC	07/31/99
MANITOWOC	NE	146.610	W9DK	O PL107.2CAEZRAWX	*	MANCORAD	06/09/99
MILWAUKEE	SE	146.625	WB9ZRB	O		WB9ZRB	06/19/98
BIG FLATS	NC	146.625	N9WYQ	O PL114.8 TT E		N9WYQ	05/15/98
WAUSAU	NC	146.640	W9SM	O PL114.8 AELXZ911		W.V.R.A.	07/10/98
JUNEAU	SC	146.640	W9TCH	O PL123.0 AELWXZAR	*	ROCK R RC	06/10/99
HOLLANDALE	SC	146.655	KB9AKM	O PL123.0 E		HVARC	08/19/98
APPLETON	NE	146.655	KB9ENO	O PL107.2 AEDSLWXRA		ECR LTD	04/07/98
STEVENS POINT	NC	146.670	WB9QFW	O A E Z		CWRA LTD	04/06/97
BELOIT	SC	146.670	WA9JTX	O PL123.0 E R #77	*	BELOIT AR	06/09/99
LAC DU FLAMBEA	NC	146.670	N9AFN	O PL107.2	*	N9AFN	06/09/99
MILWAUKEE	SE	146.670	WB9SMM	O PL127.3 AEXZRWX		ARES	01/03/89
BALDWIN	NW	146.685	WB0OND	O E L X R A		SARCASM	09/15/96
MADISON	SC	146.685	W9YT	O PL123.0 E	*	UW BARS	06/09/99
POUND	NC	146.685	KA9JVH	O PL107.2 DS L	*	NEWRL	06/09/99
LAC DU FLAMBEA	NC	146.700	W9BTN	O		W9BTN	04/04/98
CLINTON	SC	146.715	K9RIJ	O PL123.0 A TT E	*	K9RIJ	06/09/99
RICE LAKE	NW	146.715	WB9PRI	O E	*	WB9PRI	06/09/99
WAUSAU	NC	146.715	KF9RU	O PL114.8		KF9RU	04/06/97
CARLSVILLE	NE	146.730	W9AIQ	O PL107.2		DOOR CO	04/02/98
IRMA	NC	146.730	K9GTQ	O		K9GTQ	05/09/97
ST. LAWRENCE	SE	146.730	N9LZW	O PL127.3 X	*	W.C. ARC	06/09/99
NEW AUBURN	NW	146.745	N9LIK	O PL110.9 A E		N9LIK	05/11/98
UNION GROVE	SE	146.745	N9OIG	O PL127.3 E		N9OIG	03/05/98
APPLETON	NE	146.760	K9OQO	O PL100.0 DS EX RA		F V VHF A	03/31/98
LA CROSSE	SW	146.760	K9CUT	O	*	LaCrossRA	06/09/99
MADISON	SC	146.760	W9HSY	O PL123.0 CA DSEXZ	*	M A R A	06/05/99
SUPERIOR	NW	146.760	W9BWK	O		T P A RA	05/11/98
GRANTON	NC	146.775	N9RRF	O WX	*	N9RRF	06/09/99
MILWAUKEE	SE	146.790	W9HHX	O PL127.3 A CA DS		MSOE ARC	09/08/98
WIS RAPIDS	NC	146.790	W9DQA	O PL114.8 CAEXZAR		MIDST RA	09/03/98
MENOMONIE	NW	146.805	N9HNI	O CA 911 #DOWN		N9HNI	03/09/97
KEWAUNEE	NE	146.805	WB9RJB	O PL107.2		WB9RJB	02/07/97
DELAFIELD	SE	146.820	K9ABC	O PL127.3 CAEZXLWX		SEWFARS	11/16/98
WAUSAU	NC	146.820	W9BCC	O PL114.8 CA E X L		R.M.R.A.	09/01/98
SUPERIOR	NW	146.820	WA9VDW	O PL203.5 A DS		T P T G	05/11/98
ASHWAUBENON	NE	146.835	KB9DSV	O PL107.2	*	KB9DSV	06/10/99
BLUFF SIDING	SW	146.835	WB0BDI	O		WINON ARC	05/11/98
MAUSTON	NC	146.850	N9FVP	O		ARC OF CW	04/02/98
HUBERTUS	SE	146.850	W9KHO	O PL127.3	*	MICORS	03/15/99
ELKHORN	SE	146.865	KB9LBR	O CA E	*	LAARC	06/10/99
SHAWANO	NC	146.865	KB9DAC	O PL114.8	*	KB9DAC	04/09/99
CHIPPEWA FALLS	NW	146.880	WA9PAM	O		WA9PAM	05/11/98
BARABOO	SC	146.880	WR9ABE	O PL123.0 DS E XWX	*	C.W.R.A	06/10/99
HILBERT	NE	146.895	N9OBG	O PL146.2		N9OBG	05/11/98
MILWAUKEE	SE	146.910	K9IZV	O PL127.3 DSEXZAWX		MKE RPTR	09/13/97
EAU CLAIRE	NW	146.910	W9EAU	O PL110.9 A E X	*	E C ARC	04/09/99
RICHLAND CENTE	SW	146.910	WB9SLI	O PL131.8		P V RP A	02/17/98
WAUPACA	NC	146.925	N9BKJ	O PL114.8 A Z R E	*	N9BKJ	05/10/99
HIXTON	SW	146.940	KC9YE	O	*	T-J RA	05/10/99
MADISON	SC	146.940	WR9ABE	O PL123.0 DS A	*	C W R A	06/10/99
RHINELANDER	NC	146.940	W9ZZZ	O A E X Z WX AR	*	RHIN RP A	03/22/99
GREEN LAKE	SC	146.955	KB9WC	O		G FOX ARC	11/16/98
HUDSON	NW	146.955	K0LAV	O TTON787 TTOFF1787		K0LAV	06/19/98
LA CROSSE	SW	146.970	K0JYB	O A E X Z WX RA		RVRLNDARC	04/02/98
CEDARBURG	SE	146.970	W9CQO	O PL127.3 CA E X Z	*	O.R.C.	06/09/99
IRMA	NC	146.970	KC9NW	O		KC9NW	09/01/98
STEVENS POINT	NC	146.985	W9NN	O O A E Z TT	*	CWRA LTD	06/09/99
SIREN	NW	146.625	N9PHS	O	*	NORWESCO	07/31/99
PARK FALLS	NC	147.000	KA9EOK	O PL110.9		PRICE CRA	06/19/98
MILWAUKEE	SE	147.000	W9PY	O PL146.2 A X	*	PHANTOM	06/09/99
TOMAH	SW	147.000	N9UOM	O		N9UOM	03/23/98
RICE LAKE	NW	147.030	WB9WFG	O PL110.9		WB9WFG	04/06/97
FRIENDSHIP	SC	147.030	N9TD	O PL123.0	*	N9TD	06/09/99
MANITOWOC	NE	147.030	N9GHE	O PL110.9 A Z R	*	N9GHE	06/09/99
SHELL LAKE	NW	147.045	N9PHS	O E AR WX	*	NORWESCO	07/31/99
MILWAUKEE	SE	147.045	W9RH	O PL127.3	*	M.R.A.C.	06/05/99
WAUSAU	NC	147.060	W9KRY	O PL71.9 L 147.165		KC9NW	09/01/98
PLYMOUTH	NE	147.060	WE9R	O PL107.2	*	SHEB ARC	07/31/99
GREEN BAY	NE	147.075	N9DKH	O PL107.2		AHSTC	12/01/98
JANESVILLE	SC	147.075	K9FRY	O PL123.0	*	K9FRY	05/10/99
PRAIRIE FARM	NW	147.075	K9ST	O		K9ST	04/04/98
FOND DU LAC	NE	147.090	WD9ESH	O PL107.2	*	FDL RPT	07/31/99
LA CROSSE	SW	147.090	N9ETD	O	*	MRARA	07/31/99
MILWAUKEE	SE	147.105	K9IFF	C CA E TT		K9IFF	05/11/98
NECEDAH	SC	147.105	K9UJH	O PL123.0 E	*	K9UJH	03/15/99
GILLINGHAM	SC	147.120	K0DB	O		K0DB	12/21/98
GREEN BAY	NE	147.120	K9GB	O PL107.2 CADSEXZ	*	G B M&K	04/09/99
WEST MILWAUKEE	SE	147.135	NY9T	O PL141.3		NY9T	04/07/97
SPOONER	NW	147.135	KE0WF	O	*	KE0WF	05/10/99
TIGERTON	NC	147.135	KF9TS	O X WX		KF9TS	05/14/97
MADISON	SC	147.150	W9HSY	O PL123.0 CA DSEXZ	*	M A R A	06/05/99
MEDFORD	NC	147.150	KB9OBX	O PL114.8 A E WX	*	ARC TAYLO	07/31/99
MILWAUKEE	SE	147.165	WB9SDD	O PL127.3 E		WB9SDD	04/02/98
IOLA	NC	147.165	N9NOJ	O PL103.5 L 52.83	*	N9NOJ	06/09/99
MARSHFIELD	NC	147.180	AA9BN	O A E Z L444.975		MAARS	01/14/96
SISTER BAY	NE	147.180	W9AIQ	O PL107.2 CA E		DC ARC	09/11/97
APPLETON	NE	147.195	N9PAO	O PL107.2 L		N.X.C.	06/20/97
BALSAM LAKE	NW	147.195	N9QFW	O PL110.9		N9QFW	06/06/96
PEWAUKEE	SE	147.210	WB9AKC	O PL127.3 TT		WCTC ARC	07/10/98
MILWAUKEE	SE	147.210	W9ODD	O PL127.3	*	M.U. RAMS	06/09/99
STURGEON BAY	NE	147.210	W9AIQ	O CA A E X Z	*	DC ARC	06/09/99
BELDENVILLE	NW	147.225	N0NIC	O PL110.9 E A P	*	B.ATV S.	07/31/99
LODI	SC	147.225	K9EYY	O PL123.0	*	K9EYY	05/10/99

LOCATION	Rg	OUTPUT	CALL	ACCESS		SPONSOR	Update=OK*
OSHKOSH	NE	147.240	KA9JAC	O CA E Z RA WX		WIN CTY E	05/10/97
EAU CLAIRE	NW	147.240	WU9R	O PL110.9 A E		E C ARC	04/09/99
SHEBOYGAN	NE	147.255	N9REH	O PL127.3CADSEL		N9REH	05/07/97
ANTIGO	NC	147.255	N9TEV	O PL114.8 A E TT Z	*	N9TEV	07/31/99
HAYWARD	NW	147.255	N9MMU	O PL110.9 A E Z LX	*	NVWA	08/09/99
RACINE	SE	147.270	W9UDU	O CA E Z TT A		LAKESHORE	05/11/98
GREEN BAY	NE	147.270	KB9ALN	O PL107.2 L 145.110	*	NEWRL	06/09/99
HARTFORD	SE	147.285	K9MLD	O PL103.5 E	*	K9MLD	06/09/99
NEW HOLSTEIN	NE	147.300	KA9OJN	O A E Z	*	C.A.R.E.S	01/18/99
SPOONER/HERTEL	NW	147.300	KB9OHN	O PL110.9 CA E Z L	*	BARS	06/05/99
BARABOO	SC	147.315	N9QIP	C PL100.0 E X WIN		N9QIP/WIN	05/11/98
PORT WASHINGTO	SE	147.330	WB9RQR	O PL127.3 CA EXZWXR		OZARES	04/02/98
WIS RAPIDS	NC	147.330	K9PJB	O PL114.8 E	*	WI AIR RA	06/09/99
ROBERTS	NW	147.330	KA9YRV	O PL110.9		SCVRA	08/19/98
HOLCOMBE	NW	147.345	N9QWH	O PL136.5 L		N9QWH	08/19/98
OSHKOSH	NE	147.345	N9GDY	O PL107.2	*	SOLAR	04/09/99
GREEN BAY	NE	147.360	K9EAM	O A E WX A	*	G B M&K	05/10/99
MOUNT STERLING	SW	147.360	W9DMH	O E X WX	*	W9DMH	06/09/99
RHINELANDER	NC	147.360	KA9TCC	O 114.8 A		KA9TCC	03/10/97
CHIPPEWA FALLS	NW	147.375	WD9HFT	O PL110.9 CA DS EX	*	WD9HFT	06/09/99
EARL	NW	147.390	N9PHS	O	*	N9PHS	07/31/99
WAUKESHA	SE	147.390	N9KS	O PL141.3	*	EARS	06/05/99
WAUPACA	NC	147.390	WA9FDC	O X A R WX	*	WARC	06/09/99
TOMAHAWK	NC	223.760	N9CLE	O		TOM RP A	05/11/98
FRANKSVILLE	SE	223.800	KC9NG	O PL127.3	*	KC9NG	06/09/99
WEST BEND	SE	223.820	N9NBN	O PL114.8 CA		N9NBN	03/03/97
EAU CLAIRE	NW	223.820	N9RSU	O PL67.0 TT A 911	*	N9RSU	06/09/99
OSHKOSH	NE	223.900	W9OSH	O PL107.2 CA EXWX		W9OSH	01/12/99
ASHWAUBENON	NE	223.940	KB9DSV	O	*	KB9DSV	06/08/99
MEQUON	SE	224.060	N9PMR	O		N9PMR	02/03/98
GREEN BAY	NE	224.140	W9HAM	O PL107.2 A E L Z		RADACTV	04/06/97
MADISON	SC	224.160	WB9RSQ	O PL123.0 A E L Z		WB9RSQ	05/11/98
GERMANTOWN	SE	224.180	W9CQO	O E	*	O.R.C.	06/09/99
BELOIT	SC	224.300	N9BUL	O A	*	C.B.S. RG	05/10/99
FORT ATKINSON	SC	224.420	N9DTT	O PL123.0 A TTZELR		FT AT RG	10/29/97
SHAWANO	NC	224.480	KG9AL	O PL114.8 E R	*	KG9AL	04/09/99
WINNECONNE	NE	224.500	KB9IE	O CA TT L X		P.G.R.A.	11/16/98
SPOONER/HERTEL	NW	224.500	KB9OHN	O A E Z L	*	BARS	06/05/99
WEST ALLIS	SE	224.520	KA9JCP	O	*	KA9JCP	05/10/99
MANITOWOC	NE	224.540	N9GHE	O R	*	N9GHE	06/09/99
WAUSAU	NC	224.640	W9SM	O PL114.8 AELXZ911		W.V.R.A.	07/10/98
PORTAGE	SC	224.660	KE9KX	O TT-200 IF QRM		KE9KX	05/11/98
KENOSHA	SE	224.800	K9RI	O PL114.8		K.A.R.S.	04/04/98
BELDENVILLE	NW	224.840	N9NIC	O PL110.9 E A P	*	B.ATV S	07/31/99
BALSAM LAKE	NW	224.900	N9QFW	O PL110.9		N9QFW	06/06/96
CUDAHY	SE	224.900	NK9G	O A TT L Z		NK9G	08/26/98
MILWAUKEE	SE	224.960	WD9EUF	O PL114.8 A Z		WD9EUF	04/29/97
WAUSAU	NC	421.250	K9PT	O EL AM-ATV		RMATS	06/04/97
KENOSHA	SE	442.000	W9UDU	O PL127.3		LAKESHORE	05/11/98
OCONOMOWOC	SE	442.025	N9JUU	O PL114.8		N9JUU	10/29/97
SHAWANO	NC	442.050	KB9DAC	O PL114.8 R WX	*	KB9DAC	04/09/99
OSHKOSH	NE	442.075	N9GDY	O PL107.2	*	SOLAR	04/09/99
PLAIN	SC	442.100	KA9VDU	O PL114.8 L X WX		BURG	05/11/98
CEDARBURG	SE	442.100	K9QLP	O PL127.3	*	CFD/WERA	05/10/99
APPLETON	NE	442.150	KB9QXJ	O		KB9QXJ	08/23/98
SHELL LAKE	NW	442.150	N9PHS	O WX	*	NORWESCO	07/31/99
APPLETON	NE	442.175	W9RIC	O PL100.0 CA L	*	W9RIC	06/10/99
KENOSHA	SE	442.200	N9OIG	O PL114.8 DS L X		N9OIG	03/05/98
WAUSAU	NC	442.200	N9QIP	O PL100.0		N9QIP	05/11/98
UNION GROVE	SE	442.250	N9OIG	O PL114.8 X L		N9OIG	03/05/98
CHIPPEWA FALLS	NW	442.300	WD9HFT	O PL110.9 DS E	*	WD9HFT	06/09/99
FORT ATKINSON	SC	442.300	N9QIP	C PL100.0 E L X		W.I.N.00	05/11/98
ALLENTON	SE	442.350	N9GMT	O PL114.8 A EZ L X		FM38	09/29/97
ASHLAND	NW	442.350	KB9AMY	O CA E L X Z R		KB9AMY	04/29/98
LA VALLE	SC	442.400	W9EBF	O PL123.0 E P	*	W9EBF	06/09/99
NEW BERLIN	SE	442.400	W9EBF	O PL127.3	*	W9EBF	06/09/99
MILWAUKEE	SE	442.425	N9UUR	O PL127.3 E	*	N9UUR	06/25/99
CALEDONIA	SE	442.500	WE9EE	O PL 114.8		WE9EE	12/01/98
GALESVILLE	SW	442.500	N9QIP	O PL100.0 TT X R L		N9QIP	05/11/98
TREVOR	SE	442.600	KA9VZD	O PL114.8	*	KA9VZD	06/10/99
MILWAUKEE	SE	442.650	N9VBK	O PL114.8	*	N9VBK	07/31/99
FORT ATKINSON	SC	442.750	N9DTT	O PL123.0 ATTELRWX		FT AT RG	10/29/97
BURLINGTON	SE	442.850	N9RNA	O PL127.3 WX	*	N9RNA	06/10/99
RIVER FALLS	NW	443.025	N9QIP	O PL100.0 TEXR L	*	W.I.N.	04/15/99
SHEBOYGAN	SE	442.900	AC9A	O PL107.2	*	AC9A	07/31/99
PORTAGE	SC	442.950	KB9KIR	O PL123.0 E X		DRAKE R.C	05/11/98
MILWAUKEE	SE	443.050	N9OSK	O PL100.0 CA DS WX		N9OSK	07/10/97
PEWAUKEE	SE	443.125	WB9AKC	O PL114.8/127.3 TT		WCTC ARC	07/10/98
HUBERTUS	SE	443.150	W9KHO	O PL114.8	*	MICORS	03/15/99
CLINTON	SC	443.175	K9RIJ	O PL123.0 AE	*	K9RIJ	06/09/99
BELDENVILLE	NW	443.225	N9NIC	O PL110.9 E A P	*	B.ATV S.	07/31/99
PLYMOUTH	NE	443.225	KD9TZ	O PL107.2	*	S CTY 440	06/09/99
WILLIAMS BAY	SE	443.275	K9RC	O PL127.3 CA	*	K9RC	06/09/99
EAU CLAIRE	NW	443.300	KB9R	O PL110.9 E	*	KB9R	06/09/99
NEW BERLIN	SE	443.300	KG9CS	O PL127.3	*	KG9CS	05/10/99
ROBERTS	NW	443.325	N9NGH	O PL67.0		N9NGH	05/11/98
WAUSAU	NC	443.325	KA9HQE	O PL100.0 CA	*	KA9HQE	06/09/99
MEQUON	SE	443.325	N9PMR	O PL127.3		N9PMR	02/03/98
MADISON	SC	443.400	N9KAN	O PL123.0 CA ELXZA		S.W.R.G.	06/24/98
GREEN BAY	NE	443.500	KB9AMM	O PL107.2 CA E		TEARUG	06/19/98
SPOONER/HERTEL	NW	443.500	KB9OHN	O A E L Z	*	BARS	06/05/99

LOCATION	Rg	OUTPUT	CALL	ACCESS		SPO	Update=OK*
PORT WASHINGTO	SE	443.525	WB9RQR	O PL114.8 CA EXZWXR		OZARES	04/02/98
MILWAUKEE	SE	443.550	N9LKH	O PL127.3 A X L Z		N9LKH	05/20/97
BLACK RIVER F	NE	443.600	N9JCX	O DS E PT-TM		N9JCX	05/11/98
CAMERON	NW	443.650	N9KOR	O PL110.9 E		N9KOR	05/11/98
APPLETON	NE	443.650	W9IEI	O R		F V VHF	03/31/98
NORTH FREEDOM	SC	443.675	KD9UU	O PL114.8 CAELXWX		S.W.R.G.	06/24/98
LUXEMBURG	NE	443.700	W9BLI	O PL107.2 E		W9BLI	06/09/98
TOMAH	SW	443.700	N9UOM	O		N9UOM	03/23/98
WAUSAU	NC	443.750	KC9NW	O PL71.9 CA X L E		KC9NW	09/01/98
GREEN BAY	NE	443.750	N9IIE	O Linked to 146.685	*	NEWRL	06/09/99
PORT WASHINGTO	SE	443.750	W9CQO	O PL127.3 CA E X Z	*	O.R.C.	06/09/99
MILWAUKEE	SE	443.800	N9GMT	O PL114.8 OAEZXL		FM38	09/29/97
BERLIN	SC	443.850	N9AOZ	O PL123.0 A E X	*	N9AOZ	05/10/99
BALSAM LAKE	NW	443.900	N9QFW	O PL110.9		N9QFW	06/06/96
BARABOO	SC	443.900	N9QIP	O PL100.0 E X L		W.I.N.00	05/11/98
GENOA CITY	SE	443.925	K9XN	O PL114.8 X	*	LAKARS	06/09/99
WAUSAU	NC	443.950	KC9NW	O		KC9NW	09/01/98
MILWAUKEE	SE	443.950	AA9JR	O PL127.3		AA9JR	11/16/98
MANITOWOC	NE	443.975	N9GHE	O A R	*	N9GHE	06/09/98
STURGEON BAY	NE	444.000	K9JKM	O	*	K9JKM	05/10/99
CHIPPEWA FALLS	NW	444.000	WD9HFT	O PL110.9	*	WD9HFT	06/09/99
FITCHBURG	SC	444.000	KA9VDU	O PL114.8 L X WX		BURG	05/11/98
COLGATE	SE	444.025	WX9Z	O PL151.4		WX9Z	11/25/98
RACINE	SE	444.050	KA9LOK	O	*	KA9LOK	06/09/99
WAUSAU	NC	444.100	W9SM	O PL114.8 AELXZ911		W.V.R.A.	07/10/98
DELAFIELD	SE	444.125	K9ABC	O PL114.8 CAEZXLWX		SEWFARS	11/16/98
NECEDAH	SC	444.125	K9UJH	O PL123.0 E	*	K9UJH	06/10/99
KENOSHA	SE	444.150	KB9KUT	O PL114.8		KB9KUT	08/11/98
OSHKOSH	NE	444.150	W9OSH	O PL107.2 WX		W9OSH	01/12/99
CLEVELAND	NE	444.175	K9SJ	O PL107.2 CAELWXA	*	K9SJ ARES	06/10/99
GREEN BAY	NE	444.200	WB9VJV	C		WB9VJV	10/29/97
MILWAUKEE	SE	444.200	K9HXA	C PL114.8 CA L		K9HXA	05/11/98
OSSEO	NC	444.200	N9LIE	O PL110.9 L X		N9LIE	05/11/98
PRAIRE DU SAC	SC	444.250	N9KXX	O PL123.0		BSRG	10/29/97
WAUSAU	NC	444.300	W9BCC	O PL114.8 CA E X		R.M.R.A.	09/01/98
MILWAUKEE	SE	444.300	WB9SMM	O PL114.8 L Z AR		ARES	01/03/99
MILWAUKEE	SE	444.325	N9CFG	O PL127.3 CA E	*	W.E.R.A.	06/09/99
COLFAX	NW	444.350	WA9PAM	O PL100		WA9PAM	05/11/98
PLYMOUTH	NE	444.350	WE9R	O PL114.8	*	WERA	07/31/99
GREEN LAKE	SC	444.400	KB9WC	O E X A WX		G FOX ARC	11/16/98
MENOMONEE FALL	SE	444.425	W9RGV	O PL 114.8		SHRINE	12/01/98
KAUKAUNA	NE	444.450	ND9Z	O PL107.2 CA TT	*	ND9Z	06/09/99
MILWAUKEE	SE	444.450	KA9QMD	O PL114.8 A		KA9QMD	03/10/97
LA CROSSE	SW	444.475	W9LZQ	O A A/A Z		RARC	04/02/98
MADISON	SC	444.500	WB9TAE	O PL123.0 CA DS EL		WB9TAE	12/01/98
GERMANTOWN	SE	444.525	WD9IEV	O PL114.8	*	WD9IEV	06/09/99
HOLCOMBE	NW	444.525	N9LIE	O PL110.9 E L X		N9LIE	05/11/98
HOLLANDALE	SC	444.550	N9QIP	C PL100.0 E X L		N9QIP/WIN	05/11/98
TOMAHAWK	NC	444.575	N9CLE	O		N9CLE	05/11/98
LA CROSSE	SW	444.600	N9ETD	O	*	MRARA	07/31/99
SHEBOYGAN	NE	444.600	N9REH	O PL114.8 DS E		N9REH	05/09/97
IOLA	NC	444.650	N9NOI	O PL114.8	*	N9NOI	06/09/99
NEW RICHMOND	NW	444.675	N9LIE	O PL110.9 L X		N9LIE	05/11/98
STEVENS POINT	NC	444.700	KC9NW	O E CA L		KC9NW	09/01/98
BIG FLATS	NC	444.725	N9WYQ	O PL114.8 TT E WX R	*	N9WYQ	04/15/99
PARK FALLS	NC	444.750	KA9EOK	O		PRICE CRA	06/19/98
JANESVILLE	SC	444.750	WB9BJU	O PL123.0	*	WB9BJU	06/09/99
GREEN BAY	NE	444.775	K9EAM	O PL107.2 CA E Z X	*	G B M&K	04/09/99
MADISON	SC	444.775	NG9V	O PL123.0 DS WX DX	*	NG9V	06/10/99
MILWAUKEE	SE	444.800	K9HXA	C		K9HXA	05/11/98
SPOONER	NW	444.800	KE6WF	O	*	KE6WF	05/10/99
TOMAH	SW	444.800	N9QIP	C PL100.0 E X L		W.I.N.	05/11/98
SAINT FRANCIS	SE	444.825	WJ9Z	O PL127.3 A TT Z		WJ9Z	04/06/97
HAYWARD	NW	444.850	N9EGE	O PL110.9	*	N9EGE	06/09/99
MILWAUKEE	SE	444.850	WB9TRO	C E CA PL L X	*	WERA	06/09/99
TOMAH	SW	444.850	KB9EBX	O PL167.9		KB9EBX	11/16/98
MILWAUKEE	SE	444.875	WB9TRO	O PL127.3 E		WERA	04/02/98
STEVENS POINT	NC	445.875	NJ9H	O PL114.8 X	*	NJ9H	06/09/99
SUPERIOR	NW	444.900	WA9KLM	O A E		WITC ARC	03/11/97
WAUPACA	NC	444.900	N5IIA	O PL114.8 L 146.670	*	N5IIA	06/09/99
HUDSON	NW	444.925	N9NGH	O PL67.0 TT	*	N9NGH	06/25/99
MADISON	SC	444.925	WB9TAE	O PL123.0 CA DS EL		WB9TAE	12/01/98
MILWAUKEE	SE	444.925	N9NGI	O PL127.3 CA E Z	*	N9NGI	06/09/99
RACINE	SE	444.950	WA9BDX	O PL114.8 E		WA9BDX	04/02/98
MARSHFIELD	NC	444.975	AA9BN	O E L147.18		MAARS	01/14/96
WAUSAU	NC	915.000	KB9RFT	O EL FM-ATV		RMATS	06/04/97
JANESVILLE	SC	916.000	N9HF	O FM VIDEO		N9HF	03/07/97
WAUSAU	NC	918.000	W9BCC	O X		R.M.R.A.	09/01/98
WAUSAU	NC	920.000	K9PT	O EL FM-ATV		RMATS	06/04/97
STURGEON BAY	NE	920.000	K9JKM	O	*	K9JKM	05/10/99
MILWAUKEE	SE	923.250	WB9SMM	O ATV REPEATER		ARES	08/11/98
BARABOO	SC	923.250	KB9SFS	O ATV		B.A.T.S.	05/22/98
BARABOO	SC	1252.000	KB9SFS	O ATV		B.A.T.S.	05/22/98
MILWAUKEE	SE	1253.250	WB9SMM	O ATV REPEATER		ARES	08/11/98
BLUFF SIDING	NW	1253.250	W5TWR	O ATV RPTR	*	WARC	07/31/99
STURGEON BAY	NE	1282.100	K9KJM	O EXPERIMENTAL	*	K9JKM	05/10/99

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W9R/Great Circus Train Certificates

If you worked W9R/circus train mobile and would like a frameable certificate, unfolded (thus undamaged), please send a 9 x 12 inch self-addressed, stamped envelope (3 units of postage) to: Jim Romelfanger, K9ZZ, 412½ Ash Street, Baraboo, WI 53913-2501. Please be patient! Your certificate will arrive. If there is an error, please send a note to K9ZZ or to **smokesigs@baraboo.com**.

The W9R certificate processing team is not very large: it's only me. ❑

Wisconsin Association of Repeaters Meeting

The next quarterly meeting of the Wisconsin Association of Repeaters will be Saturday, September 11, 1999, at the Chalet Motel Restaurant, 10401 N, Port Washington Road, Mequon, WI, north of Milwaukee. Dutch treat lunct at noon. Meeting at 1 p.m.

More information at **http://gmttech.com/~war**.

PARTICIPATING CLUBS AND ORGANIZATIONS

The Racine Megacycle Club

Club Station W9UDU • Racine, WI
Dennis Doonan, W9DAD, Secretary
c/o RMC • P.O. Box 3 • Racine, WI 54301-0003
e-mail: w9udu@wi.net
Web: http://www2.wi.net/~hamradio/
Voice mail: (414) 552-6RMC • ARRL Affiliated
Providing communications for American Red Cross and ARES

MEETING MINUTES
July 12, 1999

The July 12, 1999 regular membership meeting of the Racine Megacycle Club Inc. was opened at 7:30 p.m. by Vice President Bob, WE9EH. President Rees K9UUT, Secretary Dennis, W9DAD, Treasurer Greg, KB9RMA, and Activities Director Kevin KB9LLV were present. There was a total of 18 members present.

Treasurer KB9RMA read the treasurer's report. K9ZL made a motion to accept the report as read; KA9OIL seconded, and the members approved.

Bob, W9EH, summarised the Field Day scores and described some of the activities.

Further comments were received from Dan, KA9OIL, Al, N9ZWJ, John, AA9-XD, and Cheryl, WS9P.

Activities Director KB9LLV reminded the club that the first annual RMC club picnic and softball game will be held August 15, 3 p.m. at Stuart McBridde Park, which is just behind the Mt. Pleasant Town Hall. This will replace the normal August meeting. The club will provide brats, burgers, buns, and corn. Members are asked to please bring a dish to pass around.

KB9LLV made a motion that the meeting be adjourned at 8:10 p.m. KA9-OIL seconded and the membership voted in favor.

Submitted by Dennis, W9DAD, Secretary, Racine Megacycle Club

Wisconsin Valley Radio Association

Kim Kunze, N9SDL, Secretary

P.O. Box 363 • Wausau, WI 54402

Six Meter Repeater: 51.19 Input/52.89 Output

Meeting Minutes
August 3, 1999

Meeting was called to order by KB9-DED. Members present: N9NMH, N9-IAB, N9TTA, N9NRA, KB9FRB, KB9-DZG, N9SDL, N9QQ, KB9MCZ, N9SDI, NN9NN, N3FDE, and N9LIA. Visitors present were Michael Martens and N1-KAK, Alan Mc Cartney.

New Business

Information was passed regarding the progress with the new TV tower on Rib and how it affects the disposition of our repeater antenna system. Basically, the information passed was that we are approved for the same antenna and feed line as what we have now. If it is intended to be anything other than that, it must be approved due to the wind study etc. We will talk to Joe to see what his understanding is regarding this.

Dean is willing to come to the next meeting to present information and update on the TV tower project.

Discussion again took place regarding the need to raise funds for the antenna and feed line that we want to go back on the new tower. Options such as a fundraiser, getting a loan and applying for grants were discussed.

N9SDI expressed thanks to the following for helping at the Kayak races this past weekend: N9TSZ, N9LIA, W9WW, N1-NMH, KB9DED, AND N9SDI. Thanks for your help!

Old Business

Discussion took place regarding the WVRA Club considering sponsoring a BSA Venturer group of teenagers who are interested in ham radio. A committee of five is needed to be able to sponsor a group. At this point no one has stepped forward. There needs to be at least two adult individuals to take responsibility for being at the meetings that the teenagers plan and conduct. We will need these two individuals, plus at least three more, to form a committee that will work with the Venturer group. The meetings are planned and conducted by the teens and will meet as often as they feel is needed which could be once a month or once a week, etc.

The WVRA now has a web page. It can be accessed at

WWW.dwave.net/~wvra

or at

wvra.cjb.net.

The WVRA also has an email address of **w9sm@arrl.net.**

Check out the web page as it lists upcoming events, meeting minutes, packet radio information, ham radio dealer links, manufacture links, etc.

Technician classes will be offered by the WVRA this fall. Look to the web page or up coming meeting minutes for more details. There will be no cost for the course but you must purchase the "Now You're Talking" text book.

Adjournment: N9LIA and N9NMH.

Respectfully submitted:
Kim Kunze, N9SDL

Sheboygan County Amateur Radio Club — SHEBOYGAN County Amateur Radio Club

Steve Eisold, AA9SJ, Secretary
2220 N. 20th Street • Sheboygan WI 53083

2-Meter Repeater: 147.06 Output

The August meeting was called to order by the club President, Steve, N9-TRK, 7:00 p.m. local time. There were 8 members present at the meeting. The SCARC meetings are held every second Tuesday of the month in the Red Cross building at 2032 Erie Ave. in Sheboygan.

The club treasurer Mike, K9SJ, gave the treasurer's report. An exact balance was unavailable at present because of the influx of dues.

A Field Day report was given by Steve, KB9SVW. All logs were turned in to Rob, KG9OM, to send to the ARRL.

The Red Cross basement room was discussed and the purchase of materials is being planned.

The Plank Road Trail Clasic event will be held Saturday, August 28th. More operators, radios, HT's with extra batteries and/or cigarette lighter plugs are needed. Contact Art, K9XJ, or Steve, N9TRK, if you can help out in this special event.

The 2 Meter net meets Monday nights at 8 p.m. on 147.060, PL107.2+. This is a fun net, all are welcome. The 2 Meter Net Control Operators list is completed through the month of August. We are seeking Net Control Operators for the months of Sept. Oct. Nov. If you are able to serve one or more weeks as Net Control during one of these months contact Steve, N9TRK.

The Saturday morning Sheboygan Ham's breakfast is held at the following venues:

1st Saturday at 8:00 a.m. - Jumes in Sheboygan

2nd Saturday at 8:00 a.m. - Family Restaurant in Cleveland

3rd Saturday at 8:00 a.m. - Jumes in Sheboygan

4th Saturday at 8:00 a.m. - Point Drive-in, Sheboygan Falls

Hams, spouses, hangers on and such are welcome.

Contact Steve, N9TRK, with ideas for presentations during regular club meetings. There are five slots open between now and June 2000.

Meeting adjourned at 8:00 p.m.

Just a reminder, if you use e-mail, consider signing up on the Sheboygan Hams mailing list. Simply submit your e-mail address to:

<julian@bongo.tele.com>.

All e-mail sent to **<shebham@tele.com>** will be forwarded to all listed subscribers. Thanks again to N6ARE for providing this mail server for SCARC use!

For those of you who do not have an e-mail address and have correspondence for the club, our address is: SCARC, P.O. Box 1282, Sheboygan, WI 53082-1282.

Net Schedule

8:00 pm Monday nights, SCARC Fun Net, 147.060, PL 107.2+

Respectfully submitted:
Sky Borgenhagen, N9XRU

RED CEDAR REPEATER ASSOCIATION, INC.

STEVE HART, KA9OMC, SECRETARY

E616 810TH AVENUE **KNAPP, WI 54749**

2-Meter Repeater: 146.01 Input/146.61 Output

Greetings, RCRA members and guests.

It is time to remind you of our fall meeting schedule. Social Hours have been scheduled for September 28, October 26, and November 23 at the Peppermill Restaurant in the L-Mart Shopping Center, 1414 9th Street, Menomonie. Meeting time is 7:30 p.m. Financial statements are offered and sponsors and the public are encouraged to attend and offer input about our operation. Some comments that were offered last year last year concerned a different month or time for the auction. Please submit your ideas in writing with signatures to demonstrate support. A list of volunteers, available finance, etc., should be submitted with any ideas to the attendance and the directors for review.

The association continues to need at least two additional directors. You should be age 21 or older and be willing to keep a membership in ARRL to satisfy our insurance requirements. Contact the RCRA at the above address.

Time to end our 25th Anniversary T-shirt offer. We have a couple orders to complete and a re-do or two. Our continued appreciation to KB9LUK, James, and KB9QGK, Deena, for their work on this. James also has a Radio Shack HTX 242 for sale. Contact him at (715) 283-4373.

N9RSU, Leroy at Eau Claire, operates the 223.820 MHz repeater with minus offset and PL of 67 Hz. Leroy is in the process of adding additional height to his system and is getting some guy wire help from N9ISN, Al, at Albertville. Leroy has a Standard 2 meter 168A HT for sale. Contact him at (715) 836-9235.

N9PPE, Jeff at Bloomer, recently spent some of his vacation at the Oshkosh Flyin and also enjoyed a visit from his

Continued on page 11

Red Cedar Repeater Association

Continued from page 10

sister. Jeff has for sale a Kenwood TS-830 HF transceiver for $450.00. Reach Jeff at (715) 568-1011.

NQ9X, Ed at Whitehall, is looking for some help putting up his 6-meter halo antenna. Ed has for sale a Paserio computer for $1000. Contact Ed at (715) 694-2101.

KB9MOZ, Mike at Eau Galle, says he has seen less of YL KB9MSI, Mary, this summer as she has been riding around on her motorcycle. Mike has for sale an Icom 706. Reach Mike at (715) 283-4411.

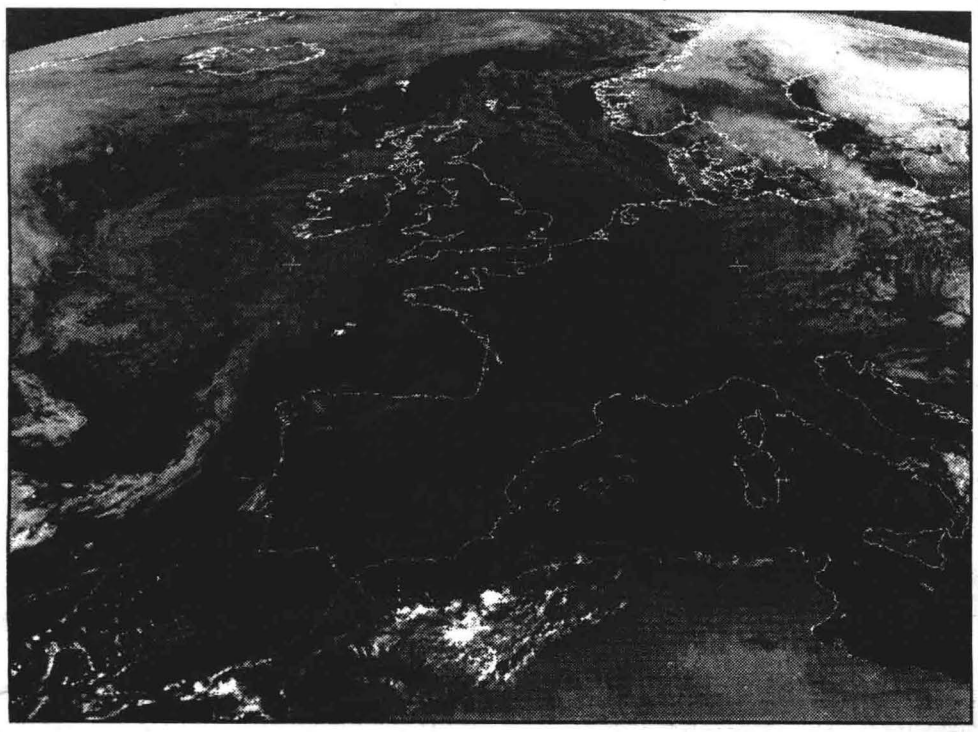
KF9CU, Arlene, keeps busy with gardening at Cedar Falls. Arlene has for sale a Pyramid 12 volt DC at 35 amp power supply. Contact Arlene at (715) 874-6570.

N0PDD, Bob at Winona, MN, claims great blue gill fishing at his camping area at Alma. Bob reminds us of the new Eau Claire hamfest for next year is June 10, 2000.

Hope to see you at the social hour.

Steve Hart, KA9OMC
RCRA Secretary/Treasurer

Top band opens at high noon during eclipse



This is how the eclipse looked from above, taken by Meteosat. The area of totality is just above and just to the right of center frame. The Birtish isles are just above and left of that. North Africa is in the bottom of the frame, and Italy is near lower right.

For a few brief hours on Wednesday, August 11, the impossible happened: 160 meters opened to summertime, daylight DX. What made it possible was the total -- or nearly total -- eclipse of the sun.

The August 11 eclipse was the last total solar eclipse of the 20th century.

The trajectory of the moon's shadow carried it across Central Europe, Turkey, the Middle East, Pakistan and India. Scientists had theorized that the absence of sunlight in the ionosphere could affect D-layer propagation. NASA had called on hams and SWLs to monitor shortwave signals from Europe before, during, and after the eclipse and report their findings.

Scientific studies by NASA and others aside, Luis Mansutti, IV3PRK, has ample anecdotal evidence in his logbook that the eclipse did, indeed, enhance D-layer propagation.

"It has been a great experience, enjoying such beautiful conditions at noon in the month of August on 160 meters!" he said in a posting to the Topband and Low Band Monitor reflectors. Mansutti -- a DXCC Honor Roll member who now DXes exclusively on 160 -- reports that the eclipse began at his QTH in JN66ne at 0918 UTC, reached a maximum of 96% of totality at 1042 UTC, and was all over at 1206 UTC.

As the eclipse began, Mansutti started hearing signals from the path of totality. After first working DL1DA in Germany, he started calling CQ and managed more than two dozen stations in 13 countries between 1020 and 1130 UTC. Other stations worked were in the UK, France, Sweden, Romania, and Turkey--the QSO times roughly tracking the path of the eclipse across Europe and into Asia Minor. His best DX was GM3POI, some 1740 km away.

For the record, IV3PRK typically runs 600 W to a shunt-fed 29-meter tower that's top-loaded with beams. He receives on a four-square phased mini-array.

Mansutti says the typical 160-meter summertime noise level began to increase as the eclipse ended.

IV3PRK was philosophical about his "fascinating" experience. "Unfortunately, it will not be possible to do it again," he concluded.

NASA reports that a special broadcast of the BBC World Service on 7.325 MHz was beamed toward the US on August 10 and 11 to test shortwave radio propagation conditions during the eclipse. An eclipse-related anomaly in the radio broadcast appears to have been detected on August 11. On August 10, the day before the eclipse, the BBC signal from Rampisham, England, was undetectable from the Marshall Space Flight Center in Alabama due to D-layer absorption over England and the Atlantic. On August 11 -- the day of the eclipse -- the radio signal came in clearly as the moon's shadow crossed the Atlantic.

The ARRL Letter

Are you reading someone else's copy of BSSS? Hey! Why not subscribe? A convenient form is on page 5 of every issue.

Quarter Century Wireless Association Southeastern Wisconsin Chapter 162

Larry McCalvy, WA9JMO
5400 Six Mile Road
Racine, WI 53402

Our September business meeting will at the Meadows Restaurant in Franksville beginning at 7:30 p.m. on the 20th. We will work out the details for our upcoming annual meeting, garner a slate of officers, and finalize the selection for the 1999 Olie Fox Award of Excellence candidates. The award will be presented at the Annual Meeting on Sunday, October 17, 1999, at Bentley American Grille, in the Marriott Hotel, 7111 Washington Avenue in Racine Beginning at 12:30 p.m.

I will be attending the 1999 Annual QCWA Convention on September 23-25, in St Louis, MO. Any tidbits gleaned from the omnipotent Hams in attendance will be past along at our October get together.

I have been contacted to participate in the Racine Elementary School craft fairs for the fall term. I turned the group down. As we discussed at an earlier meeting, the students are too young and the fair offers too many distractions for our radio demonstration to show any success.

73, Larry McCalvy, WA9JMO

Wisconsin Nets Association Ltd.

Art Evans, KA9KLZ, Secretary
213 N. Jefferson • Cuba City WI 53807-1558

WISCONSIN NETS

Net	WNA	Freq.	UTC	CDT	Manager
BWN	Yes	3985	1100	0600	W9RCW
BEN	Yes	3985	1700	1200	KE9VU
WSBN	Yes	3985	2230	1730	WB9WHQ
WNN	Yes	3723	2300	1800	KB9OCZ
WSSN	Yes	3645	2330	1830	N9BDL
WIN/E	Yes	3662	0000	1900	WB9ICH
WIN/L	Yes	3662	0300	2200	W9UW
RCRA	No	01/61 (Mondays CDT)	0030 (Menomonie Area)	1930	KA9OMC
Gr. Bay	No	72/12	0245 (Green Bay Area)	2145	WB9NRK
ARES	No	4.65/5.25 (South East/South Central Wisconsin)	0200	2100	
RACES	No	3993.5 (LSB Sunday)	1400	0900	WA9OAY

WISCONSIN STM REPORT

Net Summary for July 1999

NET	QNI	QTC	QTR	SSNS	NM
BWN	1146	1730	2325	31	W9IHW
		(for W9RCW)			
BEN	458	51	833	31	KE9VU
WSBN	487	67	797	30	WB9WHQ
WNN		no report filed			
WSSN	94	13	287	20	AG9G
		(for N9BDL)			
WIN/E	197	89	314	31	WB9ICH
WIN/L	165	36	273	31	W9UW

STATION ACTIVITY SUMMARY
July 1999

STATION	ORIG	RCVD	SENT	DLVD	TOTAL
K9RTB	0	403	49	355	807 *
K9JPS	1	400	45	274	720 *
W9IHW	1	348	43	248	639 *
W9RCW	0	344	33	233	610 *
W9YPY	0	244	275	0	519 *
K9GU	0	221	30	161	412 *
W9CBE	0	131	107	3	241
K9LGU	0	64	24	2	90
AG9G	0	33	49	8	90
N9KHD	0	34	47	3	84
N9CK	5	36	33	3	77
K9FHI	0	17	46	6	69
W9UW	0	37	27	0	64
KE9VU	0	24	32	0	56
W9YCV	0	16	30	4	50
AD9X	0	4	34	2	40
KA9KLZ	0	0	37	0	37
W9BHL	0	3	33	1	37
WZ7V	0	3	32	0	35
K9HDF	0	0	30	0	30
AA9BB	1	2	25	0	28
KA9FVX	0	1	24	0	25
W9ODV	0	0	24	0	24
WB9ICH	0	19	2	1	22
N9JIY	0	2	16	2	20
KA9BHK	0	1	10	1	12
K9UTQ	0	0	4	0	4

*Brass Pounders' League certificate

PUBLIC SERVICE HONOR ROLL

K9RTB 513	KA9KLZ 132	K9LGU 118
W9RCW 388	W9CBE 131	N9KHD 111
K9FHI 184	AG9G 126	KA9FVX 56
W9YCV 132		

What keeps the nets alive? Is it the flow of traffic, the organized net managers, the savvy message handlers, or the regular check-ins? Of course, it's all of the above - and more. We need the traffic to practice our skills of handling messages accurately and efficiently. Without good net managers, faithful check-ins, and reliable liaison stations between nets, the system just doesn't work, but there's something more.

There's got to be a reason to fight the static crashes and lousy sun spot numbers. Somethingmust inspire us to spend time from our busy schedules on the service aspectof the hobby. Perhaps it's the sense that we can do some good, help someone, prepare ourselves to help in times of need. That's good.

Now, the challenge. Tell someone. Let others know you are part of the system. Spread the word. Preach the gospel of good net participation to those who don't regularly stop by. Include a segment on public service and traffic handling in your training classes. Sharing the spirit of what we do builds the camaraderie as well as the strength of our nets.

I'm working on a routing guide for our Wisconsin section nets. It should be ready sometime in August. Feel free to contact me with traffic questions and net issues either on the nets, via Email (**k9lgu@arrl.net**) or mail to 1050 East Street, Fort Atkinson, 53538. 73.

K9LGU/STM

ARRL comments on Central States petition

In comments to the FCC, the ARRL says it supports the objectives of the Central States VHF Society's recent petition to formally segregate wideband and narrowband modes on VHF and UHF. But, the League says, the Society's petition fails to make a case to implement any new FCC rules. The petition, filed in June, would amend FCC rules to eliminate interference from FM and packet in the so-called weak-signal portions of the 6 meter, 2 meter, 1.25 meter and 70 cm bands. The FCC has assigned RM-9673 to the CSVHFS petition.

In its comments, the League said it generally supports the intent of the petition but "does not support the regulatory relief requested" because the petition doesn't spell out the extent of the interference problem. The League said the number of complaints of harmful interference to narrowband, weak-signal modes it typically sees doesn't justify additional regulation -- although the ARRL conceded that the actual number of incidents might be higher than complaints to ARRL HQ would indicate. The League said it prefers "reliance on established voluntary band plans" coupled with "some Commission support" to address the CSVHFS concerns. The ARRL took the opportunity to again call on the FCC to acknowledge "that VHF and UHF operation in accordance with established band plans is 'good amateur practice'" and it urged the Commission to support compliance with band plan to prevent interference to weak-signal operations.

The League said it shares the Society's concerns about wideband FM and packet QRM to weak signal work but suggested that new regulations could stifle flexibility in the Amateur Service rules. The ARRL said it would rather see reliance on "the self-regulatory abilities of the Amateur Service, as reflected in voluntary band plans" than new FCC regulations.

The League suggested educational efforts as an appropriate remedy for newcomers and others unfamiliar with these amateur conventions.

A copy of the League's comments, filed July 28, is available on ARRLWeb at **<http://www.arrl.org/announce/regulatory/csvhfs.html>**.

The ARRL Letter

School ham clubs benefit from Arizona tax credit

Hams in Arizona have been taking advantage of a provision in that state's tax laws to donate money to schools for Amateur Radio clubs. If you live in Arizona, you can contribute up to $200 toward extracurricular activities at public schools and deduct the entire amount as a tax credit. This means that if an Arizona taxpayer contributes $50 to the Amateur Radio club at the local public school, the taxpayer can -- within the provisions of the state law -- deduct the same amount from his or her total Arizona state tax liability.

Under the Arizona law, enacted in 1997, taxpayers there may claim the $200 tax credit, in lieu of a deduction, for any fees paid by a taxpayer to a public school for school-sponsored extracurricular activities that require enrolled students to pay a fee in order to participate.

The tax law provision offers new life for activities such as Amateur Radio clubs, providing funds for equipment for a school station, materials for antennas, license study manuals, and similar expenses. Contributions to Arizona schools that meet the law's requirements can be directed specifically to school Amateur Radio clubs and taxpayers will receive a receipt for tax purposes.

"I only became aware of this bill in mid December of 1998," said Lloyd Miller, N7GV, of Green Valley, Arizona. To beat the December 31 deadline, Miller says his Green Valley Amateur Radio Club scurried around and got a letter out to 80 club members who were Arizona residents. "We got a lot of phone calls from members who said it was too good to be true," he said. The net result was gratifying, however: $1900 to the Continental Elementary School Radio Club. The contributions, which surprised school officials who had not even tried to solicit them, wound up being the most collected per pupil of any school in the state.

"We have spent only about $200 so far for instructional materials but intend to spend most of it in the fall for a HF transceiver and antenna," said Miller, who is GVARC's training coordinator. "If the program is still in effect next year, we are thinking of VHF gear and kits the club members can assemble." Miller says three Continental School students have earned their tickets, and his club is working to get other youngsters licensed.

Most states do not yet have similar legislation in place, but certain contributions of this type *may* be deductible as charitable contributions on your itemized federal income tax return. **Check with a tax professional.** Hams in Pennsylvania and elsewhere are looking into getting similar laws enacted in their states.

The ARRL Letter

(For a copy of the applicable Arizona tax-credit statutes, contact Dan Miller, K3UFG, at k3ufg@arrl.org, or call 860-594-0340.) ❑

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MFJ-989C *Legal Limit* Antenna Tuner

MFJ uses super heavy duty components to make the world's finest legal limit tuner

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$359.95

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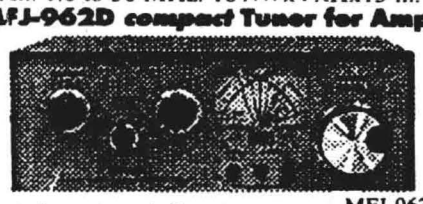
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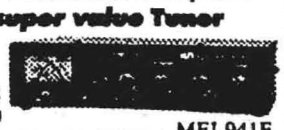
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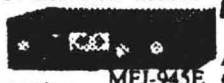
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The most for your money! Handles 300 Watts PEP, covers 1.8-30 MHz, *lighted* Cross-Needle SWR/Wattmeter, 8 position antenna switch, 4:1 balun, 1000 volt capacitors, Lexan front panel. Sleek 10½Wx2½Hx7D in.

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Extends your mobile antenna bandwidth so you don't have to stop, go outside and adjust your antenna. Tiny 8x2x6 in. *Lighted* Cross-Needle SWR/Wattmeter. Lamp and bypass switches. Covers 1.8-30 MHz *and* 6 Meters. 300 Watts PEP. **MFJ-20, $4.95,** mobile mount.

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MFJ's smallest (5x2x6 in.) and most affordable wide range 200 Watt PEP Versa tuner. Covers 1.8 to 30 MHz. Great for matching solid state rigs to linear amps.

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MFJ-906 has lighted Cross-Needle SWR/Wattmeter, bypass switch. Handles 100 W FM, 200W SSB. **MFJ-903, $49.95,** Like MFJ-906, less SWR/Wattmeter, bypass switch.

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MFJ-921 covers 2 Meters/220 MHz. **MFJ-924** covers 440 MHz. SWR/Wattmeter. 8x2½x3 inches. Simple 2-knob tuning for mobile or base.

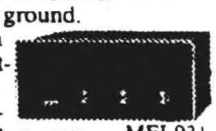
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Ultra tiny 4x2½x1¼ inch tuner covers VHF 136-175 MHz and UHF 420-460 MHz. SWR/Wattmeter reads 60/150 Watts.

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Glacier Epilogue

By Mike Carr
(Son of Sherman Carr, W9NGT)

Between January and June of this year, we published a journal, written by Sherm Carr, W9NGT. Sherm told of a journey about the US Coast Guard Cutter "Glacier", an icebreaker to which his son, Mike, was posted. Mike sent us some of his own journal. We begin it here.

The date/time group of the message was R082344Z DEC 86, and the short contents of the message followed: PACAREA TAKES FORAC AS DISCUSSED REF B. APPROVAL GRANTED TO EMBARK CIV. AS REQ. REF A. Translation, it's dad's permission to ride the ship. I was absolutely thrilled!

I mailed copies of the messages sent, along with a letter from Valparaiso, Chile. I would have liked to have seen the expression on his face when he opened it. I figured that the letter would be the big topic of discussion from then on until March. With Glacier's upcoming decommissioning, it was more important to the crew's morale to have phone patch capability than ever before, however, we had no one aboard with the proper license. I had mentioned to the CO about asking our operational commander's permission for dad to ride back with the crew, and do his phone patches. The Captain of the ship totally agreed, and told me to go for it. That was the start of W9NGT's "sea cruise" adventure

The only question was from where? There was some discussion about Glacier possibly going to Yokohama, Japan before returning to the States. When our port call itinerary was settled, I gave him the word. "Pack your bags, I'll see you in Sydney"!

Glacier continued south, stopping in Punta Arenas, Chile to embark our science party and head for the Antarctic. The question always arises: "What the devil is a U.S. Coast Guard icebreaker doing with scientists aboard"? Once below Latitude 60-00.00 S, we worked for the National Science Foundation. Glacier had five science labs plus deep water CTD and coring winches aboard. It was the most capable science platform available.

Our science cruise to the Antarctic Peninsula complete, we returned to Punta Arenas, then steamed across the bottom of the earth for McMurdo. On 29 January 87, we crossed the Antarctic Circle or Lat. 66-33.00 S. There would be no sunsets or sunrises, just constant daylight until we finish the second science cruise toward the end of February.

The International Date Line: We had a lot of fun and many laughs concerning the date line. When we crossed, yesterday became tomorrow, with no today! And I used to have enough trouble with "Spring ahead, Fall back"! We actually crossed it at 0523 on February 1st. However, ship's and engineering logs, plus other reports, have to begin on the 1st. For convenience's sake, it was decided that there would be no January 30th, so according to our calendar, we crossed on the 1st and it remained the 1st . Confused? One can be arbitrary and capricious when you're thousands of miles from anywhere.

We left Antarctic waters the end of February, steamed through the rough waters of the Tasman Sea, and arrived in Hobart, Tasmania on March 1, 1987. After going through all of the procedures required with entering a foreign port, I found a phone booth on the pier and called the States. Dad answered the phone, and to his surprise, the operator said, "This is Australia calling, will you accept charges from Hobart, Tasmania?" We had a good chat, then discussed particulars of his flight. I'll meet him in Sydney on the 9th. I asked my mother if he was excited about the trip. She commented that he had packed, unpacked, then repacked countless times, since receiving my letter in December. Nope, he's not too excited. Not one bit! (I never did pay him for that phone call.)

On March 7, Glacier arrived in Sydney. There were functions to attend associated with our arrival; however, my concern was dad's arrival on the 9th, and he cannot be days late. Thoughts of him arriving only to find an empty pier had crossed my mind because of our numerous schedule changes. Flight 811, United Airlines was scheduled for arrival at 1345. At 1340, I saw a big 747 with a United paint job come lumbering down out of the sky. Unless he missed a flight in Hawaii or New Zealand, Sherman Carr had just arrived in Australia. After what seemed like an eternal wait, he finally had cleared customs and came walking out the door. We had a tearful reunion, and left the terminal. I put his luggage in the "boot" while he headed for the passenger's door. (That's the wrong side, dad, that's *my* side.) We had a great laugh when he spotted the steering wheel. The trip through Sydney was quick, and I brought him directly to his "home" for the next month. I noted a bit of relief when he spotted the ship, he had been on an airplane for almost 24 hours, but he had finally made it; he and his bags were in Sydney.

I'm certain that he would have been content to stay aboard and check out the gear in the ham shack, but my friends and myself dragged him all around Sydney, playing tourist. He did pass on a couple of excursions, opting to read manuals instead. The sight seeing and fine dining was ok, but he came the ship with a focus. He's anxious to get underway, fire up the gear, and start doing phone patches.

On March 13 at 0800, Glacier eased away from Berth 6 at the Woolloomooloo Pier (the spelling is correct), transited Sydney Harbour, and stood out to sea. Dad's 7,000 mile odyssey had begun. As was the norm, a navigation briefing was held before we departed. Plans were to steam due north to Fredrick's Rock Light, then transit to the northeast, past the Solomon Islands to the International Date Line and Equator, and then on to Hawaii.

I had also given him the 50 cent tour. I showed him where he had to go in an emergency, and even more important, where the coffee makers were located.

He has busied himself with firing up the gear, checking propagation, writing procedures for getting into the net, as well as talking to people in radio about their operations. We didn't see too much of each other, he was busy, and I had a department to run and watches to stand. I did sense that he was anxious to start doing something; just watching the ocean go by is not necessarily fun. With my midnight to 4 AM watches, I did have fun waking him in the morning, so that he could check propagation while I was off to bed for my snooze.

March 15th, we crossed the Tropic of Capricorn, or Lat. 23-27.00 S. I mentioned it to him, and asked if he had seen the dotted line across the ocean. I got a "yeah, right" look, and he told me that he had missed it, he was taking a nap. A bit of Carr humor there. Dad finally got to talk to someone in the States. He's thrilled, not only is he starting to hear people, he's sure that he can talk to them as well. He told me that he was ready to "give her hell tomorrow". He's talked to the Hawaiian Islands, Guam and Tinian, but is still having trouble hearing the States. He believes that it's because of the receiving antenna that's being used. We'll find out which antennas can be switched to improve conditions. After a few frustrating days, and a switch of antennas, Glacier can not only be heard, but is hearing the West Coast. I have a happy father.

Jan 30th is brought up, we plan to insert it between the 25th and 26th of March, and have "Rope Yarn Sunday". He gave me a look.

March 17th, in the early morning, I was on watch when Fredrick's Rock Light shows up on radar. It's 220 miles off the northeast coast of Australia, and our turn point. Next course is 056T and the Equator and Date Line.

Continued next month

My Discovery of Mir

By Dave Larsen, N6CO
MIREX Coordinator

Near the end of August, 1999, the last "regular" crew to staff the Russian Space Station Mir left to return to Earth in a Soyuz capsule. In February or March, 2000, a crew will board Mir for the last time. The crew will do cleanup and salvage, and prepare Mir for her re-entry and burnup in Earth's atmosphere, with the help of a Progress supply ship loaded with fuel to bring Mir down.

Mir may not have meant very much to "Joe Public". But it certainly brought a lot of excitement and interest, along with challenge, to Earth's ham radio community. Ham radio was for crew recrèation. In that capacity, it provided the same for thousands of terrestrials, too. We say goodbye to Mir with good memories and with sadness. But now we look toward to the International Space Station, in which Russia is a partner. And, on board, will be ARISS - Amateur Radio on the International Space Station. When complete, ARISS will be operable on bands from 20 meters to 70cm.

Here's how Dave Larsen, N6CO, remembers his interest in and work with Mir as MIREX Coordinator.

Way back when, around March of 1990, my friend, Jerry, WB6YGU, and I were listening on HF 145.550, for the Space Shuttle, hoping to copy it. All of a sudden we heard, "CQ...CQ...U2MIR", from Mir. At that time I had no idea what that was, and asked Jerry to look it up in his AMSAT book. It was then we learned we were hearing a Russian satellite, as again we heard, "CQ from Mir", but this time the voice said, "This is Musa" (Manarov).

I called back, using my lousy Russian, with 15 watts on my Icom 245 and Ringo Ranger, and was rewarded by his return in broken English. Musa asked where I was. I told him "by San Fransisco." He then asked me what the signal was like, and I replied, "It was good".

But let me digress a bit here. A "team" called SAFEX had made a contract with Serge (RV3DR), to fly an HT; Icom 228, a PacComm TNC (15K), and a PC laptop. The Icom was the radio Musa was using the first time I had heard him. Also, on board Mir back then was a Yaesu FT-290R (2.5 watts).

Musa asked me if I could please be there for another voice contact on the next orbit, so I said "sure". There was some doubt in mine and Jerry's mind whether this was truly Musa on Mir....

And at this time I had *no* idea what Doppler or a "tracking program" was.

So, Jerry and I stayed on 145.550 for what seemed a LONG time, (not having a tracking program or a clue), when we finally heard a faint voice calling, "N6JLH". I called back, but was not heard. After about 2 minutes we both heard again, "N6JLH, you hear me"? After responding, we chatted for a few minutes. Then Musa asked if he could try something; he called again, his voice very weak. He was calling on the FT-290R, his signal S-1. Then Musa came back on the Icom, loud and clear, with a signal of S9+. Right afterwards I lost him.

Two weeks passed when one late night I heard the packet signal. So I set my TNC to see what was coming across the frequency. The call was U2MIR ! I tried to connect, but kept getting, "BUSY.... BUSY (DM) I had *no* idea what this meant, so set out to learn. I got in touch with a ham that I knew that had a tracking program and gave me some times. The next night I actually got logged in and sent my first message:

SUBJ: Hello
MESSAGE: How does space look?
CTRL Z

Then Mir was off for another 3 weeks. I took this time to get an AMSAT Satellite Handbook and do some reading. I learned a lot from this book and it also helped me get to sleep faster a few nights!

I then ordered InstantTrack, (which by the way, I still run to this day), and went hunting for "Keps". Now, keep in mind, E-mail and the "Web" were not widely known or used yet. I loaded in MIR Keps, and started to upload these Keps everyday to everyone. The Mir crew kept "killing" my Keps, and I kept on loading them back onto the PMS. Finally one day I got a message from the crew asking me why I keep putting the Keps on their PMS. I replied with my reason. They were amazed. "You mean hams can "see" MIR and know when it is over their heads"? Again, you have to remember the year.

Each crew that went up on MIR had its own call sign. Here is a message from U8MIR, Alex:

Posted: 07/20/92
To : N6JLH
From : U8MIR
Subject: Dave!

Hello Dave!
All is OK onboard MIR. Today we bagain some medical and biological trainings for the future returning on the Earth. Our health isgood and medicians are satisfied.
Unfortunately I can't operate with you BBS because of observing of two hurricanes near California. Photo, video, polarisation etc.
We haven't any great works now but the time is going ver quickly.
I don't know the calls of the new crew except of Michael Tognini. And I'm dissatisfied.
Now is the time to look the hurricane. Good bye.
73 Alex U8MIR.

Sometime after this, the call sign went to RØMIR and stayed as we know it today.

One time Alex had said that everytime power ws taken off the PacComm, it would lose the prams and that he was tired of putting them back in. It was around that time that I placed a call to Mr. Ready at PacComm, inquiring about the "HandiPacket", explaining what I wanted it for and why. He said he would ship one to me. That PacComm became part of history, as it was delivered to Mir and stayed on line until sometime in 1998. It was replaced by a Kam, donated to Mirex.

In 1996 - 97, a Kenwood TM-733 was donated and flown on MIR.

About this time, SAFEX sent up what is know as the "SAFEX Repeater Experiment",which worked very well.

The SAFEX team also sent up a DVM, (Digital Voice Mike), worked well while it lasted. I have several WAV files from when Sannon Lucid was on Mir, and used to update what was going on up on Mir.

Mir's frequency had changed several times in its long history, 145.550, 145.800 - 600, 145.985.

While Mike Foale was on Mir, a fire erupted, and he needed a frequency that would not interfere with the crew's VH1 (143.625). At this time, I called the AMSAT Frequency Coordinator, USA, asked him if he had a wish list, where would be a good place for Mir to go? 145.985 was given as Mir's temporary frequency. During this time, Miles and myself were also downloading messages from Mir on 70 centimeters. Mike also used SAFEX to make 70 cm contacts with a lot of hams, while packet, too, was running on 145.985.

At about this time, CDI donated an in-line "filter" to Mir that really helped when the crew were talking on VH1.

In November of 1995, I was hearing a lot of hams saying it was *very* hard to get a QSL card from Russia, so I contacted Serge and Alex Kaleri (Deputy Chief of Energia Cosmonaut Team), and asked if I could be a QSL manager for everyone, except, of course, Russia. I received a very nice FAX letter from both, saying that yes, this was OK. Later in 1998 I suggested that only the USA Mir manager be the Sysop of Mir. This they also agreed to.

The equipment of Mir cannot be brought over to the ISS, due to several reasons, the main one being that Mir has had several coolant leaks. The ham equipment had been exposed to these leaks as well as to fires. The coolant will eat away at the equipment, and we all know what smoke will do.

It's been a lot of fun "working" Mir, over the last 9 years. A special thanks to all the vendors who donated equipment to Mirex for Mir.

Thanks go to Miles for his work when he was a part of "TEAM MIREX" for procuring the Kam and DCI Filter.

A big thanks goes to the MIREX team: Fran, KE6IXD; Scott, WA6LIE; and Jerry WB6YGU.

Now, we look forward to ISS and our project.

A special thanks to all the vendors who donated to MIREX, and to SAFEX for allowing Mirex to use their equipment. And if anyone would like some of the "Old" files or "WAV" files, please let me know. They are too big to send through the SAREX List Server. Email: **doc@volcano.net**

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THE WISCONSIN PACKETEER

Wisconsin Amateur Packet Radio Association
Allen Schnepf, N9GMJ, Treasurer
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WAPR News - September, 1999

Hello again to our regular readers and newcomers alike. As we face September, we can count on relief from what has been an unusually warm summer not only in Wisconsin, but in the rest of the country as well. This is the traditional time for the pace of our amateur radio participation to pick up. For some of us, it never really slowed. I am one of those "lucky" ones who have been active all along.

As a result of my busy schedule, I did not get a chance to schedule the Green Bay WAPR meeting as soon as I had liked. Therefore, we were unable to complete a promised mailing announcing the location of the meeting. As a result, we have had to rely on the BBS network, the internet, and good old-fashioned word-of-mouth to get out the notification. I apologize for the lateness of the scheduling, and will try to do better in the future. The minutes for that meeting will be published here in the Wisconsin Packeteer next month.

There is some packet radio news to report, however. It looks as though the western and central parts of the state will finally get connected together via packet, and it may have come to pass as you receive this. As of this writing, I was not able to check this. However, I have seen mail headers on bbs messages that show N9BQM's BBS has been forwarding to KA9JAC in Neenah. This would suggest that the linkage is in place. As soon as I am able to verify this and show you the path, I will do so.

Another network extension may soon be in the offing. The northeastern part of the state may see a linkage to Sheboygan, Port Washington, and points further south very soon. The preliminary work has been done, and the only remaining thing to be done is to re-aim an antenna at Red, N9GHE's location in Manitowoc.

Josh KG9BO has put up a BBS in Sheboygan and has a 9600 bps port that, so far, has established a reliable link with the N9PBY nodestack in Port Washington. He has told me that when the "band is up", he can also establish a strong link to Red's Manitowoc node stack and BBS. However, in normal band conditions, the link fades away. This is because the antenna that Red used to utilize for the former NF9R nodestack in Sheboygan is a beam, and it was aimed at that location. Josh has forwarded his site coordinates off to Red so that he can aim the antenna toward him. Red is awaiting a tower climber to take care of this.

In the meantime, the Manitowoc node stack has been programmed to recognize Josh's station as a node, and as soon as the antenna is aimed at him, this linkage will be "ready for prime time". I will report when this is done. I hope this does indeed work out so that we have reliable communications with the lakeshore communities and Milwaukee.

I had mentioned once before that there was an offer to put a node up outside of Milwaukee in Waukesha. I asked for input on this and found two replies in my mailbox. I forwarded the results off to my friend who was contemplating entering the world of the Node Sysop. After evaluating the results, he decided that the expenditure was not going to be worth the results.

Which brings us to another related subject. Over the course of the past few years that I have been handling "The Wisconsin Packeteer" I have oftentimes asked for input on a variety of subjects. I have received little. I know that most packet people are busy, and do not have a great deal of time to devote to sending mail that they need to reply to, let alone generating a message they don't feel they need to send out. Which makes me wonder, just what do you want this page to be about?

Which makes me plead once again for input. I'd like to implore those folks who do have an interest to let me know what you think needs to be written about. Perhaps your ideas can help us increase the number of packet operators. I try and mix elementary information for people who might be curious about the mode, along with topics that may be of interest to more experienced packet operators. Without your guidance, it is tough to tell if I'm doing any good with the material I have presented so far. So, please write me one way or another with your thoughts - my packet, E-Mail and postal addresses are at the top of this page.

On a final note, a mention of the most popular BBS program in the state, and Y2K. Many BBS Sysops use the MSYS BBS program to serve their user base. It operates on the MS-DOS platforms (including Windows 95 and Windows 98), and that is one of the reasons it is popular.

If you have been using this program, and wish to continue past January 1, 2000, you will certainly want to upgrade to the latest version. Version 1.20 has been bug-fixed and enhanced to deal with the Y2K situation. It also has a few other bug-fixes and enhancements. I have not checked it out myself, as we will discontinue using this program in Green Bay in a couple of months in favor of another program. For that reason, I can't elaborate on all of the changes in this program. I do not know if the baud rate vs attended forwarding bug has been fixed, and I am not sure if the TCP/IP subsystem has been upgraded. However, it is Y2K compliant and upgrading is a must for those BBS operators that will continue using it past the first of the year.

Keep in mind that upgrading to this new version will not fix a computer that is not Y2K compliant. You either have to upgrade your computer, or install a hardware or software solution to fix that problem. So if you have forgotten about the BBS quietly chugging away in the corner of your shack, now is the time to remember it.

I believe the MSYS site (www.hamnet.org) is still in operation, and the software was available at that site, as well as the companion FTP site. Otherwise, let your search engine find it for you on the internet.

That's all I have time and space for this month. Until next month, 73 from Andy.

Linux and Packet Radio

By Andy Nemec, KB9ALN

To some packet operators, a great deal of Packet Radio may have become old news, and some may have regarded their packet operation as "routine". They feel that there is "nothing new under the sun", so they relegate themselves to the same-old same-old. This time out we offer you an opportunity to engage in a newer activity that will not only free you of some spare time, it may just change your ideas as to what you can do with packet radio. New uses for packet radio, as well as new ways to operate packet radio are possible through the Linux operating system for personal computers.

What is Linux?

We briefly touched on Linux in the last installment of "Using the Wisconsin Network". For those of you that missed it, we'll cover what Linux is.

Linux is a multi-user, Multi-tasking computer operating system based on the UNIX operating system that is commonplace on large mainframe-style computers and powerful workstations. Unix was regarded as just "too much" for the average computer user, and never really took off as a platform for personal computers in the early days of personal computing.

Enter Linus Torvalds, a young computer science student from Finland. He was tired of the limitations imposed by the MS-DOS operating system and wanted to make an operating system that was equal to UNIX in functionality, but would run on the Intel-based home computers commonplace at the time. What was truly unique about this enterprise was the fact that he enlisted the aid of others, and did not keep the system code private. Anyone could modify the raw code, enhance it, and contribute to the evolution of the new operating system. Add to this the fact that it was, and remains "freeware", and you have a revolutionary concept. In a world where software makers have made a great deal of money from their efforts, this was a great departure from the status- quo.

The Linux operating system has caught on amongst the true movers and shakers in the computing community, and has quickly evolved into the "Next Big Thing" in the computer world. Many vendors now offer the system on CD-ROM for very low cost, and others package it nicely with installation programs of their own design. One of the most successful of these is Red Hat Software. Recently, they announced their Initial Public Offering of stock. By the end of the day, their stock had increased in value over 300%! If you have doubts as to the viability of the operating system, this may allay your fears.

One of the most effective uses for Linux is that of a server. The most popular World Wide Web Server being used today is Apache, which runs on Linux and UNIX operating systems. Linux is used all over the internet for server purposes, and it's this functionality that may make it attractive to the Amateur Radio operator. The term "server" may conjure up images of large, corporate computers and miles of wire connecting them. You may think that you don't need this kind of capability, so why bother?

The true beauty of Linux is that it's "scalable". Users don't need to have some large server application running, it is merely capable of it. The robustness of Linux shows us that it will support these applications, but you aren't stuck with something that you don't need.

Why would Hams use Linux?

Simple, the versatility of it, and the applications available for it. Linux is meant to have integral networking capabilities, which can be used in Packet Radio. Because Linux is multi-tasking, it can run many applications simultaneously. One can have a web-server, a packet radio program, a word processor, and a plethora of other programs running at the same time. You would not have to stop what you were doing in order to make a packet connection, and you have access to applications that were unheard of in the packet world until recently. Aside from that, it does involve a certain amount of "tinkering" to get it to do what you want it to do, which is a natural for a ham. We do live to tinker.

Do I get Windows?

There is a graphical user environment that is available for Linux called Xwindows. It is not the same as the familiar Microsoft product, but some clever people have designed interfaces that look very much like it.

One word of warning, however. Your MS-DOS programs and programs written for Microsoft Windows will not run in a strictly Linux environment. In order to use them, you would use a "DOS Emulator" that fools the application into thinking that you are running MS-DOS. Most applications work with this emulator, there are some that do not. There are also emulators that will run some Microsoft Windows applications. Again, not all programs will run with the emulators. However, if you have a favorite game or maybe a favorite word processor, you very well may be able to use it.

Some Ham Radio applications

The list of ham radio applications available for Linux is rapidly becoming longer and longer. In addition to satellite tracking programs, contest and logging programs, and programs for RTTY, AMTOR and CW, there is also the basic "learn Amateur Radio" type of program. Where Linux really shines in Amateur Radio is the packet radio capability.

Linux has native TCP/IP support. This is the protocol set - the method computers use to exchange data - that the internet runs on. Of course, we in the ham community still use AX.25. No problem, people have written support programs so that AX.25 can also be integrated into the Linux operating system. This allows you to do TCP/IP over ham radio, as well as use the familiar things you have always done. You can make any standard AX.25 connection via a properly set up Linux computer as well. Checking into your local BBS and nodehopping are popular activities that you can still do, but the list does not stop there.

How about APRS? There are not only the standard APRS applications, but some with a unique twist. How would you like to have the computer do something in response to an APRS event? This is possible with Linux.

Want to run a BBS? This is possible, of course. But here is a neat twist - BBS operators can have Linux running the BBS and a personal packet radio station all on the same computer.

Ever thought it would be nice to have your station do something at a certain time? Few of the garden variety packet programs allow you to do this. Linux, on the other hand, supports this with no problem.

Want to try 9600 bps operation but do not want to ante up for a TNC capable of this speed? Here's a neat twist - Linux can use your sound card as a modem, and do the work of a TNC. All you would need is a suitable radio and antenna. Sorry, Linux does many things, but it does not make RF!

How do I get started?

The real question may as well be "Should I get started?". That depends on your level of patience, as well as your level of curiosity. Patience is needed because some of the Linux configuration, and the configuration of the applications running under it, require tinkering with configuration files and some experimentation. If you are looking for something that runs out-of-the-box with no modification, you may be disappointed. While most of the installation programs used to set up Linux are pretty good, fine-tuning it to your purpose requires time and reading. But if you are looking for a nice winter project that does not involve soldering or getting your hands dirty, this may be just what you are looking for.

More to come.

We've just barely scratched the surface of the capabilities of Linux, and what the applications running under it can do. In the next couple of months, we will look at Linux in more detail from a ham's point of view. We'll tell you about specific packet radio programs, what they do, and where to go to get further information. In the meantime, I can give you a source of information that will give you a taste of Linux and what hams can do with it. It is a mailing list called "linux-hams" and you can subscribe to it by sending a message to:

majordomo@vger.rutgers.edu

Leave the subject line blank. In the body of the message, put this:

subscribe linux-hams your_e-mail_address

your_e-mail_address is indeed your particular e-mail address (like kb9aln@juno.com).

If you know nothing of Linux, you may well be confused for a little while. They speak of things that you may have never heard of. However, the info there will give you some kind of idea of what can be done with Linux in an Amateur Radio environment.

That's all we have time and space for this month. Until next time, 73 from Andy.

ULS for hams endures first-week jitters

Continued from page 6

in ULS, as do paper applications mailed to FCC that include the applicant's Social Security Number. Applications filed on-line by anyone not registered in the ULS will be dismissed. Registration requires first providing your Social Security Number or other Taxpayer Identification Number, then registering your call sign.

To register electronically, visit

http://www.fcc.gov/wtb/uls/

and click on "TIN/Call Sign Registration." A paper Form 606 (TIN Registration Form) that can be mailed to the FCC is available at

http://www.fcc.gov/formpage.html

or from the FCC's Forms Distribution Center, 800-418-FORM (3676). Paper forms may be faxed (717-338-2693) or mailed to the FCC, 1270 Fairfield Rd, Gettysburg, PA 17325-7245.

While amateurs can use a Web network connection to register or to search the ULS for individual call signs or application status, applicants must use a toll-free telephone connection to the FCC's Wide Area Network in order to actually file an application on the new ULS Form 605. Complete connection instructions are on the FCC's ULS home page, http://www.fcc.gov/wtb/uls, under "Connecting to ULS." Connecting to the ULS requires Netscape 4.5 or higher.

The ULS phase-in has created a backlog of new amateur applications at Volunteer Examiner Coordinators. ARRL-VEC Manager Bart Jahnke, W9JJ, said that while the FCC has begun accepting some data from VECs, the quantity allowed to be submitted has been very low -- 10-20 applications per VEC were accepted the first three days after ULS went into effect for hams. Not all VECs are set up to file under the new system yet. "To date, only Monday's data appears to have been successfully processed," Jahnke said at week's end. "The ARRL-VEC is ready to transmit nearly 70 test sessions containing more than 150 successful applications, once the FCC gives us the green light."

As a result, applicants for new amateur licenses will have to wait a few more days -- perhaps several days -- longer before their new call signs are issued by the FCC. In addition, no vanity call sign applications were processed during the ULS phase-in period last week. Once the ULS is working as planned, automated processing of electronically filed applications is supposed to occur nightly each business day, but there will be no weekend processing under the ULS.

The FCC said it expects to tackle the VEC application backlog very soon. It also said it hoped to have the ZIP file available daily fo Web call sign servers and others to access.

At this time, the ULS is not accepting any club station applications. Trustees and custodians of club, military recreation, and RACES licenses should continue to use the old Form 610B to file applications for those stations and should not use their personal Social Security Number as the TIN for these licenses. Club station trustees and applicants should contact ULS Technical Support at 202-414-1250 to obtain an Assigned Taxpayer ID Number for each club license and provide it on the Form 610B.

The FCC says that anyone who fails to register in the ULS will be unable to receive services from the FCC. This means the FCC will not process future license grants, upgrades, modifications or renewals for any applicant not registered in the ULS. The FCC recommends that all amateurs register now, even if they have no immediate need to transact business with the FCC.

Amateurs having ULS problems or questions should contact the FCC's ULS Technical Support staff at 202-414-1250.

The ARRL Letter

Yellow Thunder Amateur Radio Club

WB9FDZ (Original Club Call)
K9ODK (Robert L. Prine Memorial Call)

Raymond J. Matlosz, N9MLZ, Secretary
450 West 2nd Street • Reedsburg, WI 53959

The August 3, 1999 meeting of the Yellow Thunder Amateur Radio Club, Inc. was called to order at 7:40 p.m. by Steve Schulze, N9UDO, club president. The minutes and treasurer's report were accepted.

ANNOUNCEMENTS

Steve Schulze reported that Bill Hommel, KA9QFJ, was thinking about selling one of his rigs to the club.

There will be a pre-swapfest meeting at Steve Schulze's QTH Wednesday Aug 11 at 7 p.m.

OLD BUSINESS

None.

NEW BUSINESS

There will be an EOC exercise in Spring Green Saturday, August 7, 1999 from 9 until noon.

Bill Klinkner, N9KXX, announced there will be an American Cancer Relay for Life the weekend of the 7th in Sauk Prairie. Club members voted to donate $25.00 in the memory of Jim Decker (WB9UQT).

Swapfest planning continued. Next swapfest will be August 12, 2000.

Other discussions included a weekly net and a balloon launch.

Winning Bid on the Yaesu radio was Richard Wegner, N9MME.

Buck night winner was Derek Wagner, who was not present and hence did not win.

Meeting adjourned 8:52 p.m.

NEXT MEETING

Election of new club officers to be held at this meeting, Tuesday September 7, 1999 at 7:30 p.m., room 18, Baraboo Civic Center.

*Raymond **(I will not run)*** Matlosz, N9MLZ
Club Secretary

The following members and guest were present:

Jim Paul, N9LKY	Baraboo
Steve Schulze, N9UDO	Baraboo
Raymond Matlosz, N9MLZ	Reedsburg
David W. Spearing, KB9CSW	Portage
Leonard Wagner, N9XJG	Baraboo
Carol Wagner, Baraboo	
Maurey Gurgel, KA9TBU	Reedsburg
Bill Klinkner, N9KXX	Sauk City
Thomas Harrison, N9PQJ	Reedsburg
George Gabay, N9QQR	New Lisbon

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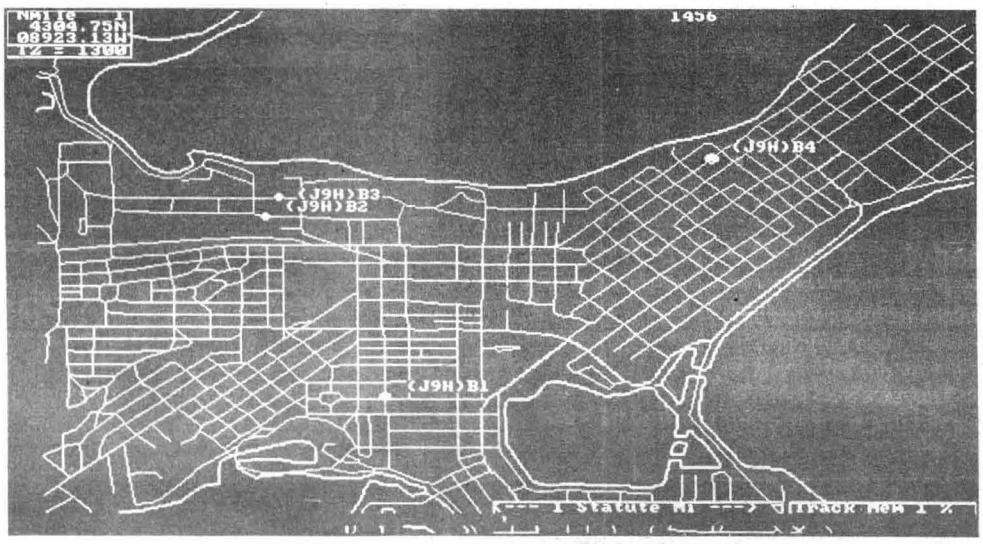
Darrow's
COUNTRY MARKET
1212 8TH STREET
BARABOO, WISCONSIN

The Automatic Packet Reporting System

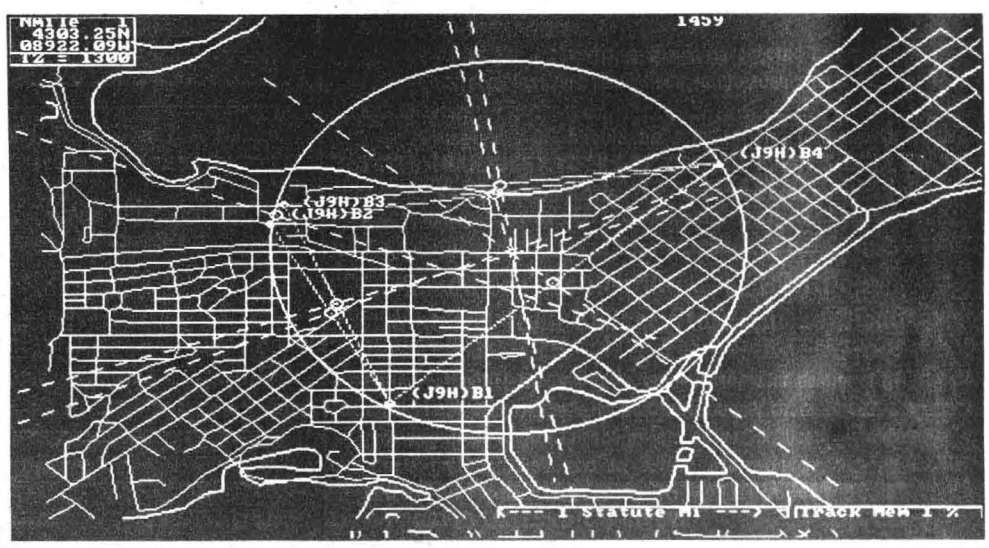
Continued from page 7

APRS can estimate the center of a circle (fox's location) if you tell it the location of the points where the signal fades out. A single mobile station with a passenger running APRS on a laptop can plot those fade-out points simply by placing the cursor at that location on the map and pressing <F5>. When using the fade-point method, APRS will ask if this <F5> point is the beginning of a new plot. Answer "Y" for the first point, or "N" for the continuation of an existing run.

Here is a map of downtown Madison, showing four points. Each point is named by the computer with the last 3 characters of the station's callsign and then a two-character identifier. Point B1 is where the mobile first acquired the signal. B2 is where the signal faded out. The mobile then turned around and re-acquired the signal at B3. Finally, B4 is where it faded out again.



Now that we have two sets of points, press M (Maps), P (Plot), D (DF), and F (FadePlot). APRS will do the geometry and blot the bisected lines on the map. The fox will likely be located at the intersection of most of the lines. (On this map, I manually overlaid a circle on the fade points for clarity. APRS only assumes the circle and does not show it.)



If you'd like more information on direction finding with APRS, check the <F1>-F help files under DF.TXT. For more information on APRS in Wisconsin, check N9UUR's nice web site at: **www.execpc.com/~n9uur**, or mine at: **www.execpc.com/~tcweeden**.

See you on 144.39! ❑

Moving? New address? Tell us!

If you're a BSSS subscriber, and your address is changed or you take a hike to a new location, please tell BSSS so we can keep the BS SS coming with no interruption. Please send your new one to Ken Ebneter, K9EN, 822 Wauona Trail, Portage WI 53901, or by email to **kebneter@palacenet.net**.

Thank you so very much! ❑

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April 9, 2000
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July 8, 2000
(Held every July)
American Legion Park
Shepard Avenue • Oak Creek, WI
(414) 762-3235 Extension: Ask for Verne
P. O. Box 102 South Milwaukee, WI 53172

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For Information Contact:
Jim Staatz KG9MV at 715-838-9108
P.O. Box 1867 Eau Claire, WI 54702-1867
kg9mv@ecol.net http://www.ecarc.org

Racine Amateur Radio and Computer Auction

Friday, October 1, 1999 • 7 p.m. to ??
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Web: http://www2.wi.net/~hamradio/auction/HTML

Ozaukee Radio Club

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Saturday, May 6, 2000
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Intersection of Highway 60 and County I
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Red Cedar Repeater Association, Inc.

AUCTION

February 22, 2000 • 7:00 p.m.
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Eau Claire, WI

CONTACT:
Steve Hart, KA9OMC 715-665-2374
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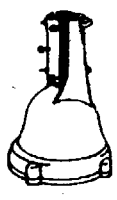


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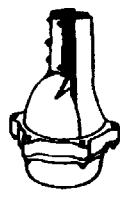
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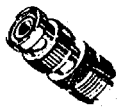
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